

9/10/93

**SUBJ: AIR TRANSPORTATION OPERATIONS INSPECTOR'S HANDBOOK**

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**1. PURPOSE.** This change transmits new and revised sections of the handbook.

**2. EXPLANATION OF CHANGES.** This is the first change to the 8400.10 handbook to use the Government Printing Office (GPO) typesetting program. Implementation of the typesetting program will eventually include the entire handbook. During the transition to a complete revision of the handbook, changes to the handbook will include some formatting differences. For example, the paragraph number that is normally listed on the inside bottom of each page is not included in Change 8. This change also uses change bars to designate new or revised material. Significant areas of new direction, guidance, and policy included in this change are as follows:

a. A new section (section 3), Major Changes in Operating Authority, has been added to volume 2, chapter 3. This section was developed from handbook bulletin 90-3, Operator Transitioning to a Different Regulatory Part. With publication of this change, handbook bulletin 90-3 is no longer valid.

b. Section 1, General Topics, in volume 3, chapter 6, has undergone revisions concerning operational control functions and systems, weather information requirements for flight operations, and other topics. Paragraph 1151 includes comprehensive information on notices to airmen (NOTAM).

c. All eight sections of volume 3, chapter 9, Proving and Validation Tests, have received significant rewriting. Since nearly every paragraph in these sections received some attention, change bars run throughout the sections.

d. Volume 4, chapter 1, section 2, Air Navigation Approval Requirements, focuses on operator requirements. Since some paragraphs in the section have been moved or deleted, the entire section displays change bars. The five phases of the validation test process are described in volume 3, chapter 9, section 2.

e. Volume 4, chapter 1, section 5, Special Navigation Areas of Operation, includes a revised list in paragraph 157 of countries that are considered to be sensitive international areas.

f. Volume 5, chapter 1, section 2, Phases of Certification, includes revised instructions for completing application forms for airmen certification and ratings (including the revised (7/92) FAA Form 8710-1, Airman Certificate and/or Rating Application, in figure 5.1.2.1.) and contains additional guidance for inspectors and examiners concerning the standards of performance for the oral and practical phases of flight tests.

g. Section 20, Trip Records Inspections, in volume 6, chapter 2, has been withdrawn. Inspectors should refer to volume 6, chapter 2, section 5 for guidance concerning trip records inspections.

**3. DISPOSITION OF TRANSMITTAL.** This transmittal is to be **RETAINED AND FILED IN THE BACK OF THIS HANDBOOK** until it is superseded by a new basic order.

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## CHAPTER 3. SELECTED PRACTICES

### SECTION 3. MAJOR CHANGES IN OPERATING AUTHORITY

**201. PURPOSE.** This section contains direction and guidance to be used by certificate managers and principal inspectors for processing an operator's application for a major change in operating authority. There are three circumstances that constitute a major change in authority:

*A. Transitioning to a Different Part.* An operator may transition from one operating rule to another. For example, a Part 135 operator may wish to introduce into its operations an aircraft type having a seating capacity of more than 30 passengers or a maximum payload capacity of more than 7,500 pounds. The operator would require Part 121 operations specifications (OpSpecs) and Department of Transportation (DOT) authority to operate that type of aircraft.

*B. Additional Operations Under a Different Part.* An operator may request to conduct additional operations that are governed by another Part of the Federal Aviation Regulations (FAR). For example, a Part 121 operator may wish to introduce a helicopter shuttle service into its operations. The operator would have to demonstrate the ability to meet the Part 135 certification requirements to obtain OpSpecs to conduct the shuttle operations.

*C. Additional Operations Under the Same Part.*

*(1) Domestic, Flag, and Supplemental Operations.* An operator authorized to conduct any of these types of operations may request authority under the same Part to conduct operations that were not previously authorized. For example, a Part 121 supplemental operator may apply to conduct domestic or flag operations.

*(2) Requests for Simultaneous Authority to Conduct Interstate and Intrastate Operations.* Some operators have, in the past, requested authority to engage in scheduled, intrastate, passenger-carrying operations while also conducting an interstate, on-demand operation under Part 135. Intrastate operations are considered common carriage and are not under the jurisdiction of the DOT. As such, intrastate operators cannot participate in interline agreements with air carrier certificate holders or carry mail. In addition,

it is the DOT's position that an air carrier may not perform one kind of service under DOT authority while also performing another service outside of DOT jurisdiction. Thus, an operator holding an air carrier certificate cannot conduct both interstate, on-demand and intrastate, scheduled, passenger-carrying operations. If an operator requests certification for both interstate and intrastate scheduled operations as indicated in this subparagraph, the Air Carrier Fitness Division (P-56) of the DOT should be notified at (202) 366-2341.

*(a) Certification Procedures.* The certification procedures for scheduled, intrastate operations under Part 135 should be identical to those required for commuter air carriers, assuming the frequency of operation meets the commuter definition. Since intrastate operators are considered to be conducting common carriage, an Operating Certificate (FAA Form 8430-21) shall be issued in accordance with volume 2, chapter 1, section 2. Operators must surrender to the FAA any previously issued air carrier certificate and the OpSpecs paragraphs that authorize interstate operations.

*(b) Pilot Requirements.* The OpSpecs issued must contain the following statement as additional text in paragraph A8: "Notwithstanding the applicability to commuter air carrier operations, a pilot must meet the requirements of FAR 135.243(a), 135.244 and 135.105(a) before being assigned as pilot in command in intrastate scheduled operations." Because the scheduled operation as a "common carrier" would be identical to a commuter operation, it is appropriate to require the same pilot requirements. These must be shown on the OpSpecs because the specific Part 135 rules apply only to commuter "air carriers." The provisions in FAR 135.11(b)(2)(vii) apply.

**NOTE:** A person holding an operating certificate may be authorized to conduct "on-demand" operations as a common carrier, but is limited to intrastate operation. Interstate operation would be limited to private carriage as a contract carrier, and holding out to the public to provide air transportation is not permitted.

**202. APPLICATION AND APPROVAL PROCESS.** Managers and principal inspectors should view an operator's application for a major change in operating authority as a partial recertification of the operator. (The full approval process is described in volume 2, chapter 2 of this handbook.) The certificate manager or the Flight Standards District Office (FSDO) having responsibility for the operator shall form a certification team and appoint a team leader, preferably one of the principal inspectors. The certification team shall comply with the following guidelines:

*A. Preapplication Phase.* In the preapplication phase, the certification team and the operator shall decide what documents the operator must create or modify and what type of proving or validation tests the operator must conduct (see volume 3, chapter 9).

(1) *FAA Form 8400-6.* The certification team leader shall ensure that the operator completes an FAA Form 8400-6, Preapplication Statement of Intent (see figure 2.2.1.1.).

(2) *Compliance Statement.* The operator will be required to develop a formal compliance statement for those rules that apply to the new operations.

(3) *Use of Job Aids.* The certification team shall use the applicable Air Carrier Certification Job Aids (see figures 2.1.1.1. through 2.1.1.3.) to determine the required actions. The "Date item accomplished/ready for FAA insp." column of the job aid shall be marked "N/A" for those items that will not be required. When

proving or validation tests are required, the team shall use the job aid in figure 3.9.2.1., Part 121/135 Proving and Validation Test Job Aid. The certification team leader shall, at this stage, coordinate with the appropriate Regional Flight Standards Division (RFSD). The RFSD should coordinate with AFS-510 if there are unresolved issues or if additional guidance is required.

*B. Formal Application Phase.* The certification team leader shall ensure that the operator submits a formal letter of application. The application must contain those attachments listed in volume 2, chapter 2, section 2, paragraph 85, which have been determined as applicable to the specific case in the previous phase.

*C. Document Compliance Phase.* In the document compliance phase, the process described in volume 2, chapter 2, section 3 is applicable.

*D. Demonstration and Inspection Phase.* In the demonstration and inspection phase, the certification team shall ensure that the applicable events of the job aid are accomplished; otherwise, the guidance in volume 2, chapter 2, section 4 is applicable. Since unique circumstances surround each recertification, the certification team leader shall ensure that the RFSD concurs before closing this phase.

*E. Certification Phase.* In the certification phase, the certification team shall follow the guidance in volume 2, chapter 2, section 5.

**202. APPLICATION AND APPROVAL PROCESS.** Managers and principal inspectors should view an operator's application for a major change in operating authority as a partial recertification of the operator. (The full approval process is described in volume 2, chapter 2 of this handbook.) The certificate manager or the Flight Standards District Office (FSDO) having responsibility for the operator shall form a certification team and appoint a team leader, preferably one of the principal inspectors. The certification team shall comply with the following guidelines:

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*C. Document Compliance Phase.* In the document compliance phase, the process described in volume 2, chapter 2, section 3 is applicable.

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*E. Certification Phase.* In the certification phase, the certification team shall follow the guidance in volume 2, chapter 2, section 5.

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## CHAPTER 6. OPERATIONAL CONTROL

### SECTION 1. GENERAL TOPICS

#### 1145. BACKGROUND AND DEFINITIONS.

This chapter contains background information, a definition of terms, and direction and guidance to be used by inspectors concerning operational control. Inspectors should be thoroughly familiar with this information before reviewing those sections of an operator's general operations manual (GOM) concerning operational control, and before performing inspections of an operator's operational control facilities, or when conducting aircraft dispatcher certification. Principal operations inspectors (POI) should be thoroughly familiar with this material when preparing those portions of an operator's operations specifications (OpSpecs) that relate to operational control.

*A. Chapter Contents.* Section 1 of this chapter contains general information on topics pertinent to the operational control of all air transport operations under Parts 121 and 135. Section 2 contains information and guidance specifically related to Part 121 dispatch systems and domestic operating rules. Section 3 contains information specifically related to Part 121 flight release systems and supplemental operating rules. Section 4 contains information specifically related to Part 121 flag operations, supplemental operations conducted outside the contiguous states, and extended over-water operations. Section 5 contains information specific to Part 135 flight-locating systems and operational rules.

*B. Regulatory Requirements.* Federal Aviation Regulations (FAR) 121.531 through 121.537 require that Part 121 operators exercise operational control over all common carriage commercial and air transportation flights they conduct. FAR 135.77 contains the same requirements for Part 135 operators. Operational control is defined in Part 1 as "the exercise of authority over initiating, conducting, and terminating a flight."

*(1) Operational Control Functions—General.* Operators conduct operational control by making those decisions and performing those actions on a daily basis that are necessary to operate flights safely and in compliance with the regulations. Operational control functions include crew and aircraft scheduling,

accepting charter flights from the public, reviewing weather and notices to airmen (NOTAM), and flight planning. Another aspect consists of developing and publishing flight control policies and procedures for flightcrews and other operations personnel to follow in the performance of their duties. Operators are responsible for collecting and disseminating information that is needed to plan and conduct flights safely, including information about en route and terminal weather conditions, navigation, and airport facilities.

*(2) Operational Control Systems—General.* Operational control systems vary with the kind of operation the operator is authorized to conduct, the complexity of the operations, the means of communication, and with the persons who are involved in preparing for and conducting flights under the operator's system. Parts 121 and 135 provide for three general types of operational control systems: flight dispatch, flight release, and flight-locating.

*(3) Operator Oversight Responsibility.* The operator's oversight responsibility includes ensuring that both its flightcrew and operational control employees comply with published policies and procedures.

*(4) Operator's GOM.* FAR 121.133 and 135.21 require that operators prepare and keep current a manual for the guidance of flight, ground and management personnel in the performance of their duties and responsibilities. The operator's GOM must identify the person having overall responsibility for operational control and those persons to whom authority to exercise operational control has been delegated. The operator's GOM must contain guidance on the conditions that must be met before a flight may be initiated or continued, or under which a flight must be diverted or terminated.

**NOTE:** Single pilot operators, single pilot-in-command (PIC) operators, or operators granted a deviation to the requirements of Part 135 by paragraph A16 of the OpSpecs are not required to prepare and keep a current manual.

*C. Specific Operational Control Functions.* Operational control includes, but is not limited to, the operator's performance of the following functions:

- Ensuring that only those operations authorized by the OpSpecs are conducted
- Ensuring that only crewmembers trained and qualified in accordance with the applicable regulations are assigned to conduct a flight
- Ensuring that crewmembers are in compliance with flight and duty time requirements when departing on a flight
- Designating a PIC for each flight
- Providing the PIC and other personnel who perform operational control functions with access to the necessary information for the safe conduct of the flight (such as weather, NOTAM's, and airport analysis)
- Specifying the conditions under which a flight may be dispatched or released (weather minimums, flight planning, airworthiness of aircraft, aircraft loading, and fuel requirements)
- Ensuring that each flight has complied with the conditions specified for release before it is allowed to depart
- Ensuring that when the conditions specified for a flight's release cannot be met, the flight is either cancelled, delayed, re-routed, or diverted
- Monitoring the progress of each flight and initiating timely actions when the flight cannot be completed as planned, including diverting or terminating a flight

*D. Specific Operational Control Systems.* In descending order of precision and complexity, the three general operational control systems are flight dispatch, flight release, and flight-locating. The operator must include, in the GOM, policies and procedures appropriate to the system being used.

**NOTE:** The operator's system for exercising operational control must be described in paragraph A8 of the operator's OpSpecs. Most operational control systems are too complex, however, to be adequately described in a single paragraph. In such cases, the operator's system may be described in the operator's GOM, and the POI may reference the GOM location of this system description in paragraph A8 of the operator's OpSpecs.

*(1) Flight Dispatch Systems.* FAR 121.533 and 121.535 require that both flag and domestic operators employ certificated aircraft dispatchers to exercise control of flights. FAR 121.99 requires that flag and

domestic operators provide radio communication facilities capable of quickly and reliably contacting a flight at all points while en route.

*(2) Flight Release Systems.* FAR 121.537 places the major responsibility for the operational control of supplemental air carriers and commercial operators with the director of operations and the PIC. The director of operations may delegate the functions for initiation, continuation, diversion and termination of a flight to other employees; however, the director of operations always retains full responsibility for these functions. For purposes of this handbook, the employees exercising operational control in a Part 121 flight release system are termed flight followers. Inspectors should be aware that operators may apply different job titles to these employees. Except for planned re-release operations, operators are not required to be able to establish direct radio contact with supplemental flights while they are en route. The flight follower must, however, concur with the PIC that a flight can be conducted safely before the flight may be initiated. This requirement necessitates a suitable means of communication between the flight follower and the PIC at each point of departure.

*(3) Flight-Locating Systems.* FAR 135.23 and 135.77 require that the name and title of each individual authorized to exercise operational control be listed in the operator's GOM. A Part 135 operator may delegate the authority for a specific flight to the PIC, but always retains full responsibility. If a flight plan is not filed with air traffic control (ATC), the individual exercising operational control must be able to establish the location of the flight to provide timely notification should an aircraft be overdue or missing. The individual exercising operational control is not required to be able to communicate with the aircraft during a flight.

*E. Organizational Structure.* An operational control function may be centralized in one individual or diversified throughout an operator's organization. In practice, it is not feasible for an individual to exercise operational control without assistance in any but the simplest of flight operations. Most operators create specialized departments for crew scheduling, load control, and other functions. These functions may or may not be placed under the management of the "flight control" department. When these functions are delegated to specialized sections of the operator's organization, the operator is responsible for the following:

- Establishing a means to ensure that all functions have been accomplished before a flight is authorized to depart

- Establishing effective internal communications, operating procedures, and administrative controls to meet this obligation
- Ensuring that these procedures are published in the operator's GOM

*F. Complex Operations.* Practical and economic considerations may motivate operators to install operational control systems that are more sophisticated than those required by the applicable regulation. Two operators that conduct operations under the same regulation may require operational control systems of differing degrees of sophistication. For example, a Part 135 on-demand operator moving hunters to and from remote locations in the bush may find a simple flight-locating system to be adequate. A Part 135 commuter operator that conducts 100 flights a day to and from major terminal areas may find, however, that a more sophisticated system is necessary to effectively control operations. The FAA may require that an operator establish a sophisticated operational control system as a condition of obtaining authorization to conduct specific operations, such as operation of an enhanced weather information system (EWINS).

(1) *FAA Evaluation.* Inspectors must evaluate each operator's operational control system to ensure that the operator complies with the applicable regulations and that the system is effective and provides for an adequate level of safety in the operations actually being conducted.

(2) *Inadequate Operational Control.* An inspector may find that an operator's operational control system provides an inadequate level of control to ensure safety. In this case, the inspector should carefully document the facts and report them to the POI through the Program Tracking and Reporting Subsystem (PTRS). The POI shall evaluate the facts and, if required, negotiate an acceptable solution with the operator, ensuring that the changes are incorporated. Should the operator be unwilling to negotiate, the POI may find it necessary to amend the operator's OpSpecs in accordance with FAR 121.79 and 135.17.

*G. Operational Control by Contractors.* Operators may contract for equipment and facilities and, under some circumstances, the services of operational control personnel.

(1) *Domestic and Flag Operators.* If a domestic or flag operator contracts for the service of a flight dispatcher to exercise operational control, the operator must maintain exclusive control over the duties, functions, and responsibilities of the contract dispatcher. (See FAR 121.1(c)(1) for the applicability of the Part 121 rules governing such contract services.) Regional Flight Standards Divisions (RFSD) are

requested to thoroughly examine proposed dispatch arrangements and not to approve methods or systems where compliance with the regulations may be questionable. In such cases, prior coordination with AFS-200 is required to preclude precedent-setting situations that could have an impact on national policy.

(2) *Part 121 Supplemental Operators and All Part 135 Operators.* These operators may contract for control functions. The operator is responsible for ensuring that the training and qualification of contract personnel is adequate, that contractor personnel are performing their duties diligently, and that the provisions of the operator's manual are being complied with. The operator must also have an effective means of disciplining contractor personnel when set guidance and policy is not complied with.

(3) *OpSpecs Authorization.* Any contract arrangements must be clearly and completely defined in the operator's GOM and authorized by the POI in paragraph A8 of the operator's OpSpecs.

#### 1147. WITHDRAWN—CHG 8.

**1149. AIRCRAFT DISPATCHERS.** An aircraft dispatcher is an airman who holds an aircraft dispatcher certificate. Part 121 flag and domestic operators must employ certificated aircraft dispatchers who are responsible for performing certain specified operational control functions. Part 121 supplemental and Part 135 operators are not required to use certificated aircraft dispatchers to exercise control. A Part 121 or Part 135 operator using an EWINS must employ either an aviation meteorologist or a certificated aircraft dispatcher who has been specifically trained to issue flight movement forecasts (FMF) (see volume 3, chapter 7, section 4).

**1151. FLIGHT INFORMATION.** Operators must supply or ensure that the information necessary to plan, conduct, and control operations is available to operational control and flightcrew personnel. Most of this data can be obtained through subscriptions to a government service or to a commercial aeronautical information and charting service. Operators should be expected to supplement these services if necessary and, in all cases, are responsible for ensuring that the information used is accurate and complete. Operators must also supply other data, such as NOTAM's, track messages, and airport obstruction data, when applicable. The operator's system to obtain and distribute airport data must be described in paragraph A9 of the OpSpecs. The operator's system may also be described in a section of the GOM and referenced in paragraph A9 of the operator's OpSpecs. The operator's GOM must contain the guidance and

procedures by which flightcrew and operational control personnel can acquire and apply this information.

*A. Airport and Facilities.* The Airport/Facility Directory (A/FD) contains information on airports and facilities that is needed by flight crewmembers and operational control personnel. For example, the information that certain runways are closed to air carrier aircraft may be contained in the Airport Remarks section for each airport listed in the A/FD. Inspectors should inform their operators that such information is removed from the NOTAM's system when it is published in the A/FD. This information is obtained from the aeronautical information publications (AIP) of the country for operations outside the United States. Also, inspectors should ensure that operators understand their requirement to make the A/FD information (for those airports at which operations are conducted) available to their personnel.

*B. NOTAM's.* Operators must provide NOTAM's to flightcrews and operational control personnel for domestic and international operations in airspace covered by NOTAM systems. U.S. NOTAM's are edited into final form and distributed by the United States NOTAM Office (USNOF). NOTAM's are disseminated by two methods: electronically through what is termed, Service A, and in printed form through the biweekly publication, Notices to Airmen. In general, NOTAM's originally appear in electronic form and are later incorporated in the biweekly publication. Once incorporated in writing, they are no longer transmitted electronically. NOTAM information is classified into the following three groups: NOTAM (D)'s, NOTAM (L)'s, and FDC NOTAM's. These groups, subdivisions of these groups, and other information concerning the NOTAM system are described in the following subparagraphs:

**NOTE: Refer to FAA Order 7930.2, Notices to Airmen (NOTAM), and to the Airman's Information Manual (AIM) paragraphs 5-3, Notice to Airmen (NOTAM) System, and 7-3, Preflight Briefing, for detailed descriptions of the current NOTAM system.**

*(1) NOTAM (D)'s.* NOTAM (D), or distant dissemination information, pertains to navigational aids (NAVAID), landing areas, airport runway lighting facilities, and other data that is normally not published, such as parachute jumping areas, restricted areas, and some air shows. NOTAM (D)'s are appended to electronically transmitted weather reports, such as the Service A network. NOTAM (D)'s are disseminated for all NAVAID's that are part of the National Airspace System (NAS) as well as all

public-use airports, seaplane bases, and heliports listed in the A/FD.

*(a) Center Area NOTAM's (CAN).* CAN's are issued on airway changes within controlled airspace, and they are transmitted as FDC NOTAM information on Service A.

*(b) Special Notices.* Special notices concern matters having a significant impact on flight safety. They are transmitted only once on Service A, and then are published in the biweekly, Notices to Airmen. An example of the kind of information carried in the Special Notices section is that of available landing distances when land-and-hold-short operations (LAHSO) are in effect (formerly known as SOIR: simultaneous operations on intersecting runways).

*(c) LRN NOTAM's.* Loran systems are covered by NOTAM's. While these are technically NOTAM (D)'s, they are grouped in a special file entitled Long-Range Navigation (LRN) NOTAM's. Omega navigational system outages are also listed in the LRN NOTAM file. These NOTAM's may be obtained from any flight service station (FSS) on request, or by phoning the Naval Observatory at (202) 653-1757.

*(2) NOTAM (L)'s.* NOTAM (L), or local information, includes such information as airport and taxiway construction and certain airport lighting. This information is directly relevant to surface movement guidance and control. NOTAM (L)'s can also contain information that is expected to be in effect for less than 1 hour concerning NAVAID's, lighting, and runways. NOTAM (L)'s are not normally transmitted beyond the area of coverage for the local FSS or automated flight service station (AFSS).

*(a) POI Responsibility.* POI's must ensure that the operator's GOM contains specific procedures for the acquisition and dissemination of local NOTAM information to flightcrews and operational control personnel. Operational control personnel must be provided with a positive means to collect, analyze, and disseminate current NOTAM (L) information to flightcrews.

*(b) Obtaining NOTAM (L) Information.* This information may be obtained from the FSS having responsibility for the geographic area in which the destination airport is located. Another acceptable means for operators to acquire this information is to task an authorized agent with collecting this information and reporting it to the operator's operational control center.

**NOTE: FAA inspectors and National Transportation Safety Board (NTSB) accident investigators have reported that a failure of**



operators to provide NOTAM (L) data to flightcrews has been a contributing factor in several accidents and incidents. For example, a Part 121 operator dispatched a flight of approximately 30 minutes' duration to a destination at which the instrument landing system (ILS) was reported by NOTAM (L) to be out of service. This particular flight could not be dispatched in compliance with FAR 121.613 without an operational ILS.

*FYI: The details of what is included as NOTAM (D) and NOTAM (L) are quite complex (see FAA Order 7930.2 for more specific information).*

(3) *National Flight Data Center (NFDC) NOTAM's.* FDC NOTAM's are issued by the USNOF and are regulatory in nature. They are transmitted electronically and are transmitted nationally only once. After national transmission, FDC NOTAM's are normally only maintained in a file by FSS's and AFSS's within 400 nautical miles (nm) of the respective FDC location. FDC NOTAM's are cancelled by a one-time notice that is transmitted electronically. FDC NOTAM's include, but are not limited to, the following:

- Interim instrument flight rules (IFR) flight procedures
- Temporary flight restrictions
- Presidential (and other parties) flight restrictions
- Permanent Part 139 certified airport condition changes pertaining to the Aircraft Rescue and Fire Fighting Equipment (ARFF) Index
- Snow conditions affecting glide slope operations
- Air defense emergencies
- Emergency flight rules
- Substitute airway routes

**NOTE:** POI's must ensure that the operator's GOM contains specific procedures for the acquisition, dissemination and cancellation of FDC NOTAM information to flightcrews and dispatchers. Operators should clearly understand that since FDC NOTAM dissemination is normally limited to within 400 nm of the "tie-in" FSS/AFSS, a means must be devised to collect en route, destination, and alternate airport FDC NOTAM's that may impact operations.

*FYI: Very low frequency (VLF) stations are not covered by regular NOTAM's service, but the*

*Naval Observatory does provide certain information at (202) 653-1757.*

(4) *Global Positioning System (GPS) NOTAM's.* At present the GPS system is not covered by NOTAM's. GPS advisories are available by computer modem to a special bulletin board operated by the GPS Information Center of the Coast Guard. Call (703) 313-5910. A 24-hour voice bulletin board is also available by calling (703) 313-5907. GPS NOTAM requirements and specifications are currently under development.

(5) *International NOTAM's.* The means for transmission of International NOTAM's differs from that used for domestic NOTAM's. International NOTAM's are transmitted electronically to those operators that have arranged to receive them, and they are available, on a request-reply basis, for those offices with Aeronautical Fix Telecommunication (AFTN) circuits. For all other operators, they are available upon request by contacting the nearest FSS/AFSS. If the nearest FSS/AFSS is unable to supply the information, inspectors should advise FAA Headquarters by phone at (202) 267-8343. As a last resort, they can contact the USNOF by phone at (202) 267-3390. International NOTAM's are also available from some commercial services.

(6) *Operations Not Covered by NOTAM's.* Operators may need to establish procedures or systems to develop or disseminate flight safety information concerning areas not covered by domestic or international NOTAM's, such as isolated airports or off-shore operations.

(7) *Limitations of FSS NOTAM Briefings.* Inspectors and operators alike should be aware that printed NOTAM's contained in the biweekly, Notices to Airmen, are not provided by the FSS specialist unless specifically requested. Also, lengthy and graphically depicted NOTAM's, because of their complexity, are normally not obtainable during a telephone FSS briefing. Notwithstanding the above limitations, POI's must ensure that operators that direct their crews to obtain FSS briefings also make the following information available to flightcrew and operational control personnel: electronically transmitted NOTAM's, local NOTAM's and other flight safety data, such as special notices and information from the Airport Remarks section of the A/FD.

*C. Track Messages.* Messages containing the coordinates of routes to be followed on flexible track systems such as the North Atlantic organized track structure or the Western Pacific flexible track structure are transmitted approximately every 12 hours. Track messages are sent by FAA ATC centers to various airline dispatch offices. Western Pacific and Northern

Pacific Track NOTAM's are also available as international NOTAM's under the location identifiers of the respective air route traffic control center; examples are Oakland Center (KZOA) or Anchorage Center (PAZA). Flightcrews operating over these routes are required to have all current valid track coordinates available in the cockpit to verify flight plan coordinates, should an in-flight re-routing become necessary. Inspectors must ensure that an operator's operational control personnel have this information for flight planning and flight monitoring purposes.

*D. Aircraft Performance and Airport Obstacle Data.* Inspectors must ensure that operators of all types of airplanes comply with the performance requirements of Subpart I of Part 121 or Part 135, as applicable, before a flight departs. Operators of transport category and commuter category airplanes must obtain and use airport obstacle data for takeoff performance calculations (see volume 4, chapter 3). Operators of all categories of aircraft must comply with en route obstacle clearance requirements, including contingency planning for engine failure. Inspectors should refer to volume 4, chapter 3 of this handbook for direction and guidance on aircraft performance requirements.

**1153. WEATHER INFORMATION FOR CONTROL OF FLIGHT OPERATIONS.** Inspectors must ensure that the system the operator uses to obtain and disseminate aeronautical weather data is either described in paragraph A10 of the operator's OpSpecs or that the system description, if in the operator's GOM instead, is referenced in paragraph A10.

*A. Sources of Weather Reports.* Weather reports used to control IFR flight operations under either Part 121, Part 135, or visual flight rules (VFR) Part 121 operations must be issued by either the U.S. National Weather Service (NWS); a source approved by the NWS; or, for operations outside the U.S., by a source approved by the FAA Administrator. Part 135 VFR operations may be conducted using pilot or other authorized observations when other reports are not available (see chapter 7, section 3 of this volume for a detailed discussion of approved weather sources).

*B. Sources of Forecasts.* All weather forecasts must be based on data obtained from qualified sources as listed in previous subparagraph A. POI's should ensure that operators obtain forecasts from qualified sources.

*C. Weather Reports for Takeoffs and Landings.* Operators must obtain and use a current weather report before taking off, landing, or beginning an instrument approach. The visibility and ceiling values (when

applicable) in the body of the report are controlling for these operations. A reported observation of runway visual range (RVR), runway visibility value (RVV), or runway visibility by observer (RVO) on the runway to be used is controlling when such reports are available. For definitions of "current weather" and "latest weather report," see volume 3, chapter 7, paragraph 1409.

*D. Weather for Flight Release.* Part 121 and Part 135 contain a number of rules that require operators to use "appropriate weather reports or forecasts or any combination thereof, (which) indicate the weather conditions at the estimated time of arrival." The FAA General Counsel (AGC) has interpreted this language to mean that the critical time period is the estimated time of arrival (ETA). Inspectors must ensure that operators use all available weather reports and forecasts, as applicable, to cover this time period.

*(1) Use of Forecasts for Long-Range Operations.* Clearly, current weather reports are of less value than forecasts for long-range operations. Under AGC's interpretation, a flight may be released to a destination that is currently below minimums but that is forecast to be above minimums at the ETA. AGC goes on to comment, however, that the use of hourly reports to monitor trends is prudent and may be required to meet the intent of the rule.

*(2) Release of Flights Based on Forecast Weather Information.* Operators may be required to release flights with limited weather information. For example, a transcontinental flight from the east coast to the west coast must depart several hours before the destination airport opens and the first surface observations (SA) of the day are taken. A similar situation occurs when a station SA is missing from the hourly sequence reports. An operator, aircraft dispatcher, or PIC who operates a flight under such conditions would be considered to be in compliance with the FAR under the following conditions:

- Those weather reports or forecasts which are available have been obtained and used
- Adequate contingency plans have been made to deal with the situation, should later reports be unfavorable

*(3) Use of Pilot Reports.* The term, "available reports," includes pilot reports (PIREP).

*(4) Specific Part 135 Requirements.* FAR 135.213(b) requires "weather observations made and furnished to pilots to conduct IFR operations" to be taken at the airport where those operations are conducted, unless the operator has been issued authorization by OpSpecs to use an observation

taken at another location. The NTSB has ruled that a Part 135 operator may file a flight plan and fly IFR to a radio fix where VFR conditions exist, and then continue under VFR to a destination (where weather reports are not available) when an area forecast shows prevailing weather to be VFR.

**NOTE: In these cases, operators must continue to comply with the flight-locating requirements of FAR 135.79.**

*E. Conditional Phrases in Weather Forecasts.* An AGC opinion has been given concerning conditional phrases contained in the remarks section of a forecast. In AGC's opinion, these remarks (in addition to the information contained in the main body of the forecast) are controlling for purposes of a flight dispatch or flight release (see volume 3, chapter 7, paragraph 1407).

(1) *Flight Movement Forecasts (FMF).* Under an EWINS, an EWINS-qualified meteorologist or aircraft dispatcher may issue an FMF based on a detailed analysis of the specific flight without including conditional phrases. An FMF may be used for operational control purposes (see volume 3, chapter 7, section 4). It is an acceptable practice for an aircraft dispatcher to release a flight to a destination (at which conditional remarks of an NWS forecast indicate the possibility of the destination being below minimums) when the FMF for that specific flight indicates that the airport will be at or above minimums.

(2) *Exemptions from Weather Requirements.* Many operators have obtained exemptions to release flights to destinations at which the forecast remarks contain conditions below minimums. Inspectors and POI's should be aware that these exemptions require those operators to exercise a number of additional precautions. Typical precautions include the designation of a second alternate airport and a requirement that the aircraft dispatcher monitor and advise the flightcrew of conditions while the flight is en route. POI's of operators using these exemptions should ensure that the operator's GOM contains adequate guidance.

*F. Adverse Weather.* FAR 121.101 requires flag and domestic operators to have a system for obtaining reports and forecasts of adverse weather for each route and airport used. FAR 121.601 requires that the aircraft dispatcher provide this information to the PIC.

**1155. FLIGHT PLANNING.** Inspectors must ensure that operators conduct preflight planning so that flights are conducted as follows: to the standards of navigational accuracy required in the airspace traversed, to meet regulatory fuel requirements, to satisfy ATC information and reporting requirements, and to

ensure that flights are operated safely. The degree of sophistication and accuracy required in flight planning depends on the type of navigation conducted and on the airspace traversed. Operators may assign flight planning duties to either flightcrew or operational control personnel. It is a common and acceptable practice for operators to contract for flight planning from specialized services. The operator, however, is responsible for the accuracy of any information the contractor uses and for the accuracy of the results.

*A. Flight Plans.* The term "flight plan" means a paper document or a file of electronic data prepared for purposes of flight planning, flight control, and navigation. Flight planning consists of selecting an appropriate aircraft cruise schedule and applying forecast wind, temperature, and aircraft performance data to a planned route to predict estimated time en route (ETE) and estimated fuel consumption. The term "ATC flight plan" is used in this chapter to mean the subset of information extracted from the flight plan, which is filed with ATC to obtain an ATC clearance.

*B. Computation and Verification.* A flight plan may be computed manually or with computer aids. In either case, inspectors must ensure that the operator's GOM contains the specified procedures, formats, and forms to be used. POI's shall ensure that operators understand their responsibility for making sure that flightcrew and operational control personnel verify the accuracy of planning. Since even computer-generated flight plans are subject to input errors, use of a computer system that contains internal software to check for errors in flight plans is desirable. POI's shall also ensure that the operator's GOM contains adequate procedures for flightcrew and operational control personnel to scrutinize all computer-generated and all manually generated flight plans for accuracy.

*C. Part 121 Requirements.* Part 121 operators are required by FAR 121.695(a) and FAR 121.697(a) to carry a flight plan to destination on all flights. Operators typically require that flightcrews record the flight progress on the flight plan or on other documents.

**NOTE: In international operations, POI's may require such procedures as a condition of authorizing extended over-water navigation. When the flightcrew is required to record the flight progress, the annotated flight plan becomes a record of the flight. After completion of the flight, the flight plan is a record that must be retained by the operator for a period of 30 days (see FAR 121.697).**

*D. Part 135 Requirements.* Part 135 operators are not specifically required by regulation to carry a flight

plan on all flights. POI's of Part 135 operators, however, should ensure that the operator's GOM contains procedures that accomplish the following:

- Inform the PIC of the required information contained in center-stored flight plans that ensure compliance with FAR 91.169(a)
- Ensure compliance with FAR 135.209 or FAR 135.223 fuel supply requirements
- Ensure compliance with FAR 135.181, FAR 135.211(b)(1), and applicable Part 135, Subpart I performance requirements
- Ensure compliance with FAR 135.211, FAR 135.217, and FAR 135.221 alternate requirements
- Familiarize PIC's with all available information required by FAR 91.103

(1) *Load Manifests.* FAR 135.63(c) requires that a load manifest be kept on board all multiengine aircraft flights. The load manifest must contain the following:

- Number of passengers
- Total weight of the loaded aircraft
- Maximum allowable takeoff weight for that flight
- Center of gravity (CG) limits of the loaded aircraft
- CG or an acceptable entry from an approved schedule
- Flight or registration number
- Origin and destination of flight
- Identification of all crewmembers and their position assignments

(2) *Valid Track Coordinates.* Flightcrews must carry the valid track coordinates in the cockpit during flights over flexible track systems.

*E. Navigation Methods and Flight Plans.* Inspectors should keep in mind that the primary concerns in choosing navigation methods and procedures are the degree of precision required for the separation of air traffic and obstacle avoidance. Class I station reference navigation is VFR or IFR navigation within the standard service volume of International Civil Aviation Organization (ICAO), ground-based, electronic NAVAID's. Courses and distances are published on standard IFR charts or may be determined by plotting courses on an IFR or VFR chart. To be acceptable for Class I navigation, a simple flight plan should include at least the following:

- Fix or intersection identifiers, segment distances, ETE's for each segment, and an estimate of fuel consumption for each segment (A segment or zone is the distance between two check points.)
- A summation of distance, time, and fuel to show regulatory compliance

(1) *Long-Range, Class II Navigation.* Long-range, Class II navigation is navigation conducted beyond the operational service volume of standard ICAO NAVAID's. Long-range, Class II navigation normally requires specialized long-range navigation systems such as Loran, Omega/VLF, inertial navigation systems (INS)/inertial reference systems (IRS), GPS, or Doppler. In some cases, dead reckoning (DR), pilotage, or celestial navigation may be used.

(2) *Long-Range, Class II Flight Plan.* An acceptable flight plan for long-range, Class II navigation should contain the following elements:

- Waypoints (Fixes for the portion of the route conducted by Class I navigation)
- The waypoint coordinates identifier (located next to the waypoint or on the line below)
- The course leaving the waypoint
- Forecast segment wind, drift, or drift correction
- Forecast temperature (or temperature deviation) and true air speed (TAS)
- Segment distances, estimated ground speed, and segment ETE
- Estimate of fuel consumption for each segment
- Indication of equal time points (ETP), if they are used for compliance with engine-out fuel or oxygen requirements
- A summation of distance, time, and fuel to indicate regulatory compliance
- A means of predicting clear air turbulence, such as the height of the tropopause, maximum wind level, temperature gradients, or shear index

(3) *Celestial Navigation.* When navigation is conducted by celestial means, flight planning requires current navigation charts, a current air almanac, and sight reduction tables. The operator's GOM must contain specific procedures to be used for flight planning, the required forms, and the procedures for checking the validity of the planning conducted.

(4) *Organized Track Systems.* When operations are conducted over an organized track system, the flight plan coordinates must be checked against the track message. The operator's GOM must specify the individual responsible for the check and the procedures to be used.

**NOTE:** Advisory Circular (AC) 90-76, *Flight Operations in Oceanic Airspace*; AC 91-49, *General Aviation Procedures for Flight in North Atlantic Minimum Navigation Performance Specifications Airspace*; and AC 120-33, *Operational Approval of Airborne Long-Range Navigation Systems for Flight Within the North Atlantic Minimum Navigation Performance Specifications Airspace*, contain guidance for approving operations in minimum navigation performance specification (MNPS) airspace.

(5) *Omega/Loran Systems.* When Omega or Loran is used, appropriate NOTAM's must be checked to ensure that adequate signal coverage is available.

*F. Pilotage.* Pilotage is navigation conducted solely by reference to visually distinguishable checkpoints. Pilotage may be either Class I or Class II navigation, but may only be approved over areas where checkpoints are readily distinguishable and in airspace where such operations are authorized. VFR navigation by pilotage may only be conducted by operators as follows:

(1) *Part 121.* These operators may conduct VFR navigation only when and where specifically authorized to do so by the OpSpecs.

(2) *Part 135.* These operators may conduct VFR navigation by pilotage in airplanes (other than turbojets) and helicopters without specific authorization by OpSpecs.

(3) *Turbojet Airplane Operations.* These operations may be conducted by VFR navigation by pilotage only according to paragraph B33 of the OpSpecs.

(4) *Flight Planning for VFR Pilotage.* VFR pilotage requires the use of current VFR navigation charts. Inspectors must evaluate an operator's flight plan to ensure that it includes, but is not limited to, the following elements as applicable to the operation:

- Checkpoints, segment distances, ETE's for each segment, and an estimate of fuel consumption for each segment
- A summation of distance, time, and fuel planning to show regulatory compliance (departure point to destination, required reserve, and contingencies)

(5) *Flight Planning and Navigation for Class II, VFR Operations.* Additional precautions may be necessary, depending on the area of operations. For example, in a polar or wilderness area, aircraft should always have adequate fuel to fly to the nearest fueling point, along with a reserve of fuel. Helicopters operating offshore should at all times have at least enough fuel to reach land, and thereafter fly for an additional time as specified by the operator's manual.

*G. Dead Reckoning (DR).* DR is navigation conducted solely by the pilot flying a calculated heading and estimated groundspeed without a means of obtaining a position. The pilot computes such headings by applying estimated wind information to the measured track. Navigation by DR is only acceptable under certain limited circumstances. For example, operators may be approved by the OpSpecs to conduct either IFR or VFR flights between the service volumes of two standard NAVAID's on a direct course between the aids. Such operations must be limited to periods of not more than 1 hour and to areas where ATC separation standards do not preclude such operations. POI's must evaluate other DR operations on a case-by-case basis.

**1157. SELECTION OF ALTERNATE AIRPORTS.** A critical element of preflight planning is the selection of alternate, takeoff, en route, and destination airports. PIC's and operational control personnel have a range of latitude to accommodate individual circumstances. Operators must provide specific direction and guidance to PIC's and aircraft dispatchers for the selection of takeoff, en route, and destination alternate airports.

*A. Terrain.* FAR 91.103 requires that PIC's familiarize themselves with "all available alternatives if the planned flight cannot be completed." FAR 121.565(a) requires the PIC to land at the "nearest suitable airport" in case of an engine failure or shutdown. FAR 121.565(b), however, does allow a PIC operating an airplane of three or more engines to proceed to an airport other than the nearest suitable airport when this course of action is as safe as landing at the nearest suitable airport. While these rules apply specifically to PIC's, operational control personnel should be aware of, and be guided by, these requirements when selecting alternate airports. POI's shall ensure that operators and PIC's take particular care in the selection of alternate airports in mountainous areas. POI's should ensure that the operator would be in compliance with Subpart I of Part 121 or Part 135 (in normal and engine-out configurations) while en route to the alternate airport.

*B. Weather, NAVAID's, and Airport Conditions.* Aircraft dispatchers, flight followers, and PIC's must

be aware of the distance to the alternate, the effect of weather, inoperative NAVAID's, and airport conditions when selecting alternate airports. For example, when the winds switch from easterly to strong westerly at Boseman, Montana, the alternate minimums increase from 600/1+1/2 to 1200/3+1/2. Inoperative NAVAID's, runway conditions, or runway closures can render an airport unacceptable as an alternate airport.

**1159. LOAD CONTROL.** When heavy payloads are carried aboard an aircraft, the fuel load may have to be limited. In addition, the weight at which an aircraft can be released is limited by takeoff, en route terrain clearance, and landing performance limitations (see volume 4, chapter 3).

*A. Loading Assumptions.* Operational control personnel must have either actual loading information or they must make assumptions about aircraft loading before they can release a flight. For flights released using loading assumptions, inspectors must ensure that the operator has established a means for ensuring that flights actually do depart at, or below, the maximum weight used for planning.

*B. GOM.* Inspectors must ensure that the operator's GOM contains information and procedures for the control of fuel load, payloads, takeoff weights, and CG. The operator's GOM must clearly delineate the category of employee responsible for making these computations, adequate information and procedures for performing such calculations, and the procedures by which the flightcrew and operational control personnel can ensure that these functions have been accomplished before the aircraft departs.

**1161. AIRWORTHINESS OF AIRCRAFT.** FAR 121.605 prohibits the dispatch or release of an aircraft unless it is airworthy and has all required equipment installed, as prescribed in FAR 121.303. FAR 121.709 and FAR 135.443 require that before an aircraft can be operated it must have an airworthiness release (or appropriate logbook entry) and be signed by a properly authorized person.

*A. Compliance with Minimum Equipment List (MEL) or Configuration Deviation List (CDL) Provisions.* When an aircraft is released in accordance with MEL or CDL provisions, the operator's procedures, policies, instructions, and controls for the use of the MEL or CDL must ensure that (1) there are no known conditions that would make the airplane unairworthy, and (2) the airplane is in condition for safe operation.

**NOTE:** Use of the MEL or CDL does not require a new airworthiness release. Under certain circumstances, however, approved company procedures may require the issuance

of a new airworthiness release. In any event, inspectors shall ensure that operators follow the approved procedures.

*B. MEL or CDL Limitations in Dispatch or Flight Releases.* When MEL or CDL restrictions impose aircraft performance or weight limitations, the aircraft dispatcher or the person exercising operational control must be notified of these limitations before the flight is dispatched or released. It is not unusual for additional discrepancies to arise after a release has been prepared and transmitted. When a decision has been reached to operate the aircraft with an additional deferred discrepancy after the release has been prepared, the operator must have procedures for notifying the aircraft dispatcher or the individual exercising operational control. If the flight cannot be operated as originally released, a new release must be prepared or the original release must be amended.

*C. Discrepancies After Departure.* A flight is considered to have departed when it moves under its own power (forward or backward) for purposes of flight. After this time, any discrepancy that arises must be handled according to the flight manual. If the flight manual has procedures for that particular discrepancy, which allow for the continuation of the flight, and the PIC determines that the flight can safely depart using those procedures, then the flight may continue. If the flight manual does not permit continuation of the flight, or if the PIC determines that the flight cannot safely depart, the discrepancy must be entered in the maintenance log in accordance with FAR 121.563 or FAR 135.65(b) and maintenance action must be taken in accordance with FAR 121.709 or FAR 135.65(c) before the aircraft takes off. A new or amended release is required when the flight cannot be operated as originally planned. For example, the anti-skid could fail during the taxi for takeoff. If the flight manual contains procedures for adjusting performance computations which indicate that the flight can operate within the required limits at the departure point, destination, and alternate airport, the flight could continue. Conversely, if the flight handbook does not contain any such procedures, the flight must return for maintenance action.

**1163. CREW QUALIFICATION AND CREW FLIGHT TIME LIMITATIONS AND REST REQUIREMENTS.** The operator is responsible for assigning specific personnel to operate each flight, including the designation of a PIC. Crewmembers and the operator are jointly responsible for ensuring that crewmembers are qualified in accordance with the regulations (including special airport qualifications) and are in compliance with crew flight time limitations and rest requirements before the flight departs. Operators may delegate these responsibilities to departments

other than the operational control department, but must establish procedures by which operational con-

trol personnel can verify that these requirements have been accomplished.

**1164.-1174. RESERVED.**

**[PAGES 3-596 THROUGH 3-602 RESERVED]**





## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 1. BACKGROUND

**1551. GENERAL.** Parts 121 and 135 of the Federal Aviation Regulations (FAR) require the Administrator of the Federal Aviation Administration (FAA) to evaluate each applicant's ability to conduct operations safely and in accordance with the applicable regulations before issuing an operating certificate to the applicant. The FAR also require the Administrator to determine that a certificate holder is capable of conducting operations safely and in compliance with applicable regulatory standards before authorizing the certificate holder to serve an area or route. The structured methods used by the FAA to determine an applicant's capabilities are proving and validation tests. This chapter contains direction and guidance to be used by inspectors for conducting these tests.

**NOTE:** The term, "applicant," as used in this chapter, means either a candidate applying for an operating certificate or a certificate holder requesting additional operating authority.

**1553. PROVING TESTS.** FAR 121.163 and 135.145 require applicants seeking authority to operate certain types of aircraft in revenue service to prove their capability before being granted operating authority. These applicants must conduct proving tests. Proving tests consist of a demonstration of the applicant's ability to operate and maintain an aircraft new to the operator's fleet or the applicant's ability to conduct a particular kind of operation, such as domestic, flag or commuter. The applicant is required to operate and maintain the aircraft to the same standards required of a certificate holder that is fully certificated and that holds the necessary authorizations. Proving tests should not be confused with aircraft certification tests, which are tests conducted by the aircraft manufacturer to demonstrate the airworthiness of the aircraft.

*A. Part 121 Requirements.* FAR 121.163 requires an applicant to successfully complete proving tests before the FAA may authorize the operation of each aircraft type.

*B. Part 135 Requirements.* FAR 135.145 requires an applicant to successfully complete proving tests before the FAA may authorize the operation of each type of turbojet aircraft or each type of aircraft for

which two pilots are required for operations under visual flight rules (VFR).

**1555. VALIDATION TESTS.** FAR 121.93, 121.113, and 135.13(a)(2) require an applicant to demonstrate the capability to conduct operations over proposed routes or areas in compliance with regulatory requirements before being granted FAA authority to conduct these operations. The FAA requires the applicant to successfully complete validation testing in the following circumstances: (1) before being authorized to add any areas of operation beyond the 48 contiguous states to operations specifications (OpSpecs) paragraph B50 and, (2) before being issued any of the OpSpecs paragraphs listed in figures 3.9.8.1. through 3.9.8.3. that authorize special means of navigation. Though proving and validation tests satisfy different requirements, both tests may be conducted simultaneously when appropriate.

**1557. TESTING METHODS ACCEPTABLE TO THE ADMINISTRATOR.** Applicants must demonstrate to inspectors that they can conduct flight and maintenance operations to the standards required for revenue service. Operations could range from the relatively simple to the more sophisticated. A simple operation may involve an operator that possesses Caribbean authority, but is requesting authorization to expand operations to South America. The operator may only have to demonstrate that it has the proper documentation to conduct the expanded operations. For the more sophisticated operations, such as Category II (CAT II), Category III (CAT III), and extended-range operations with two engines (ETOPS), acceptable means that applicants may use to demonstrate compliance have been published in advisory circulars (AC). Examples are AC 120-28, Criteria for Approval of Category III Landing Weather Minima, and AC 120-42, Extended Range Operation With Two-Engine Airplanes (ETOPS). (For a list of applicable AC's, see figure 3.9.8.4.) In recent years, however, operators have proved their competence by using such methods as flight simulation, mathematical modeling, and operational research, which have helped to reduce flight hours and costs. An applicant may use methods other than those specified in AC's,

provided that the applicant can demonstrate the following:

- The validity and reliability of the testing method
- That the test results verify acceptable applicant performance

**NOTE: Actual flights may not be required when an applicant can demonstrate competence and compliance with appropriate regulations without conducting a flight.**

**1559. HANDBOOK DISCUSSION OF PROVING AND VALIDATION TESTS.** Sections 3 through 7 of this chapter contain direction and guidance to be used by inspectors for conducting proving tests, and section 8 contains direction and guidance for conducting validation tests. Figure 3.9.2.1. contains a job aid to be used by inspectors for planning proving and validation tests.

**1560.-1564. RESERVED.**

**[PAGES 3-719 THROUGH 3-724 RESERVED]**

## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 2. THE PROVING AND VALIDATION TEST PROCESS

**1565. PHASE ONE.** Phase one of the proving and validation test process begins when an applicant requests authorization from the FAA to conduct an operation for which proving or validation is required. The term, "applicant," as used in this section, means either a candidate applying for an operating certificate or a certificate holder requesting additional operating authority. When an applicant's request requires proving or validation, the following steps apply:

**NOTE:** A general purpose job aid is included as figure 3.9.2.1., which may be adapted to proving or validation tests, as required. The proving and validation test process follows the general outline of the five-phase approval process that is described in volume 1, chapter 4, section 6.

*A. FAA Test Team.* The Certificate Management Office (CMO) manager or Flight Standards District Office (FSDO) manager (in the absence of a CMO manager) shall organize a test team.

*(1) Team Leader.* The team leader should normally be one of the principal inspectors assigned to the applicant and shall be responsible for the conduct, coordination, and evaluation of the test. In addition, the team leader will be the spokesperson for the Administrator on all matters pertaining to the test.

*(2) Team Personnel.* The FAA test team should include the following personnel, as required:

- The team leader
- All assigned principal inspectors
- An aviation safety inspector (ASI) (operations) qualified on the equipment
- ASI's (maintenance and avionics) trained on the installed equipment
- A cabin safety specialist when, in Part 121, aircraft of 10 or more passenger seats are involved; or, in Part 135, when aircraft of 20 or more passenger seats are involved (If a cabin safety specialist is not available, the team should include an ASI with experience in cabin safety issues.)

- A representative from the Civil Aviation Security Field Office (CASFO)

*(3) Familiarization.* All members of the FAA inspection team must become familiar with the pertinent parts of the applicant's general operations manual (GOM), procedures, and policies.

**NOTE:** If qualified inspectors are not available within the CMO or FSDO, the manager must request assistance from the Regional Flight Standards Division (RFSO).

*B. Preliminary Coordination.* The FAA test team and the applicant must reach a common understanding of what the applicant must do, what role the FAA will play, and what reports and documents must be prepared during the testing process. Both the test team and the applicant must research applicable regulatory and advisory material. If the test concerns any of the operations listed in figure 3.9.8.1., then the test team should consult an FAA navigation specialist early in phase one at either of the two following locations: San Francisco (SFO) International Field Office (IFO) at (415) 876-2765 or New York (NYC) FSDO-15 at (718) 553-1848. The navigation specialist can provide advice on testing requirements. Test team leaders involved in validations that require special performance authorizations or special operational authorizations shall consult the operations section of AFS-510 at (703) 661-0333 (see paragraph 1657 of this volume).

*C. Program Tracking and Reporting Subsystem (PTRS) Entry.* When the test team is formed, the team leader shall ensure that a PTRS record is opened for the applicant. This PTRS entry will remain open until the team completes its assignment. The record number of this entry shall be entered in the "Miscellaneous" field in all subsequent PTRS entries associated with the project. This procedure will create a complete record of proving and validation and will eliminate the need for a manually written report. (See section 6 of this chapter for step-by-step instructions for developing the PTRS record.)

**1567. PHASE TWO.** Phase two is initiated when the applicant submits the test plan to the FAA for

evaluation. During this phase, the team leader must ensure that the plan is complete and in an acceptable format before a thorough review and analysis can be conducted.

**1569. PHASE THREE.** Phase three is initiated when the team starts an in-depth review and analysis of the applicant's test plan for regulatory compliance, safe operating practices, logic of sequence, and other areas (such as training programs, crew and dispatcher qualifications, acceptable participants, and schedules). During this phase, the FAA must plan to coordinate its activities with the demonstrations that the applicant will conduct during phase four.

*A. Team Leader.* The team leader's responsibilities include the following:

- Notifying the RFSD of proving flight dates, times, and locations (The RFSD shall notify other RFSD's affected by the proposed proving flights and any resulting scheduled operations proposed by the applicant.)
- Assigning appropriate sections of the test plan to inspectors or specialists for review and comment
- Coordinating with the office of aviation security (as necessary) to obtain security inspector assistance for evaluating specific areas, such as hazardous materials and passenger screening
- Ensuring that administrative requirements such as visas and diplomatic clearances are obtained in a timely manner

*B. Team Members.* Team members are responsible for performing assigned tasks, keeping the team leader informed of all actions, and ensuring that the team leader concurs with all agreements made with the applicant. In addition, team members are responsible for recording each activity accurately and completely in the PTRS and placing the assigned number in the "Miscellaneous" field.

**1571. PHASE FOUR.** Phase four is the major phase of the test process. For proving flights, the applicant will conduct the en route flight segment and the maintenance test portion of the proving plan. In the case of validation tests, the applicant will conduct specific operations to collect data for either validation or FAA observation purposes. Phase four is concluded when the test team is satisfied that all test objectives have been achieved or that the applicant is unable to complete them satisfactorily. Before concluding phase four, the team leader shall obtain the concurrence of the CMO/FSDO manager and the RFSD.

**1573. PHASE FIVE.** Phase five is accomplished after the successful completion or termination of the proving or validation tests. In this phase, the FAA team either grants approval and issues the appropriate operations specifications (OpSpecs) or sends a letter of disapproval to the applicant. In either case, the team leader's final action is to complete the report by closing the original PTRS record that was opened in phase one (see section 6).

**1574.–1578. RESERVED.**

**FIGURE 3.9.2.1.  
PART 121/135 PROVING AND VALIDATION TEST JOB AID**

<b>OFFICIAL NAME OF THE AIRLINE</b>		<b>LOCATION ADDRESS</b>		
<b>MAILING ADDRESS (If different from location address)</b>				
PTRS CODE	PHASE ONE. PREAPPLICATION	INSP.'S INITIAL	DATE	REFERENCE
	1. Statement of Intent			
	a. Date received in FSDO from the applicant			
	b. Date FSDO obtains a copy of MMEL			
	2. Preapplication Meeting			
	a. Date preapplication meeting conducted			
	b. Date all applicable guidance material given to the applicant (Excerpts from HB 8300.10 and 8400.10)			
	c. Date that a copy of this job aid was given to the applicant			
	d. Date that any possible causes of a delay in the certificate process were discussed			
	e. Date that the formal application process was discussed			
	3. Open PTRS Master Record			

**Remarks:**

**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

PTRS CODE	PHASE TWO. FORMAL APPLICATION	INSP.'S INITIAL	DATE	REFERENCE
	1. Formal Application Letter			
	a. Full and official name			
	b. Mailing address			
	c. Primary operating location of new aircraft (Principal Base of Operations)			
	d. Name and address of the applicant's Agent for Service			
	e. Key personnel management names			
	2. Formal Application Meeting (This meeting is not a requirement.)			
	a. Date FSDO contacted to schedule the meeting			
	b. Date of the meeting			
	c. Evaluation of the Formal Application (S, U, or N/A)			
	1. Formal Application Letter			
	2. Designation of Agent for Service			
	3. Schedule of events, including the dates that the listed items will be ready for FAA inspection, or will be accomplished			
	3. Update PTRS Master Record			

**Remarks:**

**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

PTRS CODE	PHASE TWO. FORMAL APPLICATION	INSP.'S INITIAL	DATE	REFERENCE
	a. General Operating Manual			
	b. General Maintenance Manual			
	c. Company Flight Manual			
	d. Company Checklists			
	e. FAA-approved AFM for the New A/C			
	f. Maintenance Technical Manuals			
	g. Flight Attendant Manual			
	h. Flightcrew Training Manual			
	i. Flight Attendant Training Manual			
	j. Dispatcher Training Manual			
	k. Security Program Manual			
	l. Dispatch or Flight Following Manual			
	m. Minimum Equipment List			
	n. Station Operations Manual			
	o. Aircraft Weight & Balance Manual			
	p. Aircraft Servicing Procedures Manual			
	q. Airport/Runway Analysis			
	r. Hazardous Materials Manual			
	s. Other Manuals			
	t. Company Deicing/Anti-Icing Program			
	u. Carry-On Baggage Program			
	v. Exit Seating Program			
	w. Noise Abatement Requirements			
	x. Operations Specifications			
	y. Basic Indoctrination Training			
	z. Basic Indoctrination Training			
	aa. Aircraft Systems Training			
	bb. Simulator Training			
	cc. Aircraft Flight Training			

Remarks:

**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

PTRS CODE	PHASE TWO. FORMAL APPLICATION	INSP.'S INITIAL	DATE	REFERENCE
	dd. Flight Attendant Training			
	ee. Dispatcher/Flight Follower Training			
	ff. Maintenance Personnel Training			
	gg. Maintenance Inspector (RII) Training			
	hh. Maintenance Facilities Ready for FAA Inspection			
	ii. Aircraft Ready for FAA Inspection			
	jj. Emergency Evacuation Demonstration			
	kk. Ditching Demonstration			
	ll. Proving Tests			
	mm. Proposed Operations to Begin			
	4. Proof that the new aircraft, facilities, and services will be available. Proof must be in the form of a proof of purchase, formal contract, lease agreement, or a letter of agreement for the following:			
	a. The new aircraft to be added to the certificate			
	b. Maintenance facilities services and programs			
	5. Issue Letter Accepting/Rejecting Application			

**Remarks:**



**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

PTRS CODE	PHASE THREE. DOCUMENT COMPLIANCE	INSP.'S INITIAL	DATE RETURNED TO APPLI.	DATE RESUBMIT TO FSDO	DATE APPRV'D/ ACCEPT	REFERENCE
	1. Update PTRS Master Record					
	2. Evaluate Applicable Manuals - OPS/MAINT					
	a. General Operations Manual - O					
	b. General Maintenance Manual - M					
	c. Company Flight Manual - O					
	d. FAA-Approved Aircraft Flight Manual - O					
	e. Flightcrew Training Manual - O					
	f. Flight Attendant Manual - O					
	g. Flight Attendant Training Manual - O					
	h. Company Emergency Manual - O					
	i. Passenger Briefing Cards - O					
	j. Aircraft Servicing Procedure Manual - M					
	k. Security Program Manual - O					
	l. Dispatch/Flight Following Manual - O					
	m. Dispatcher/Flt. Follower Trng. Man. - O					
	n. Station Operations Manual - O					
	o. Aircraft Weight & Balance Manual - M					
	p. Airport Runway Analysis Manual - O					
	q. Cockpit Normal Procedures Checklist - O					
	r. Cockpit Emergency Procedures Checklist - O					
	s. Cockpit Abnormal Procedures Checklist - O					
	t. Hazardous Material Manual - O					
	u. Security Manual - O					
	v. Reliability Program Manual - M					
	w. Maintenance Technical Manuals - M					
	x. Configuration Deviation List - O/M					
	y. Minimum Equipment List - O/M					
	z. Flight Planning Procedures - O					

Remarks:

**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

PTRS CODE	PHASE THREE. DOCUMENT COMPLIANCE	INSP.'S INITIAL	DATE RETURNED TO APPLI.	DATE RESUBMIT TO FSDO	DATE APPRV'D/ ACCEPT	REFERENCE
	3. Evaluate Applicable Training Programs					
	a. Crewmember Training					
	1. Emergency Training					
	2. Initial Ground Training					
	3. Transition Ground Training					
	4. Recurrent Ground Training					
	5. Upgrade Ground Training					
	6. Initial Flight Training					
	7. Recurrent Flight Training					
	8. Seat Dependent Task Training					
	9. Differences Training					
	10. Low Altitude Windshear Training					
	11. Special Training (Special Airports, Etc.)					
	12. Check Airman Training					
	13. Instructor Training					
	14. Proficiency Check Curriculum					
	b. Dispatcher/Flt. Follower Trng.					
	1. Initial Training for the New Aircraft					
	2. Transition Training for the New Aircraft					
	3. Recurrent Training for the New Aircraft					
	c. Flight Attendant Training					
	1. Initial Ground Training for the A/C					
	2. Transition Ground Training for the A/C					
	3. Recurrent Ground Training for the A/C					

Remarks:



**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

PTRS CODE	PHASE FOUR. DEMONSTRATION & INSPECTION	INSP.'S INITIAL	DATE RETURNED TO APPL.	DATE RESUBMIT TO FSDO	DATE APPRV'D/ ACCEPT	REFERENCE
	1. Update PTRS Master Record					
	2. Evaluate Applicant Training					
	a. Training Facilities					
	b. Training Schedules					
	c. Flight Crewmember Training Evaluation					
	1. Basic Indoctrination					
	2. Emergency Training					
	3. Ground Training					
	4. Flight Training (Simulator)					
	5. Flight Training (Aircraft)					
	6. Differences Training					
	d. Check Airman/Instructor					
	e. Cabin Crew					
	1. Basic Indoctrination					
	2. Emergency Training					
	3. Ground Training					
	f. Dispatcher/Flight Following/Locating					
	g. Hazardous Material					
	h. Security Training					
	i. Maintenance Training					
	1. Mechanics/Repairmen					
	2. Inspection Personnel					
	3. Ground Handling/Serviceing					
	4. Station Personnel					
	3. Airmen Testing/Certification					
	a. Pilots					
	b. Flight Engineers					
	c. Dispatchers					
	d. Flight Attendants					

Remarks:

**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

PTRS CODE	PHASE FOUR. DEMONSTRATION & INSPECTION	INSP.'S INITIAL	DATE RETURNED TO APPL.	DATE RESUBMIT TO FSDO	DATE APPRV'D/ ACCEPT	REFERENCE
	4. Aircraft Conformity Inspection					
	5. Main Operations Base					
	6. Main Maintenance Base					
	7. Line/Station Facilities					
	8. Company Deicing/Anti-Icing Program					
	9. Carry-On Baggage Program					
	10. Exit Seating Program					
	11. Noise Abatement Requirements					
	12. Dispatch/Flight Following/Flight Locating					
	13. Recordkeeping (Addition of the new A/C)					
	a. Crewmembers					
	1. Training					
	2. Qualifications					
	14. Maintenance					
	a. Aircraft Records					
	b. Personnel Training					
	c. Inspector Training/Qualifications					
	15. Flight/Trip Records/Load Manifests					
	16. Emergency Evacuation Demonstration					
	17. Ditching Demonstration					
	18. Aircraft Proving Test					

Remarks:

**FIGURE 3.9.2.1.—Continued**  
**PART 121/135 PROVING AND VALIDATION TEST JOB AID**

<b>PTRS CODE</b>	<b>PHASE FIVE. CERTIFICATION</b>	<b>INSP.'S INITIAL</b>	<b>DATE</b>	<b>REFERENCE</b>
	1. Approve Operations Specifications			
	2. Present Operations Specifications to Cert. Holder			
	3. Complete PTRS Records			
	4. Complete/Close PTRS Master Record			

Remarks:

[PAGES 3-737 THROUGH 3-742 RESERVED]

## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 3. PROVING TEST REQUIREMENTS

**1579. GENERAL.** Each applicant must demonstrate the ability to operate safely by conducting proving tests in accordance with the operating, maintenance, aircraft dispatch, flight release, and flight-locating requirements of either Part 121 or Part 135, as appropriate. Proving tests must be conducted in a manner that closely simulates the regulatory conditions that will apply after approval has been granted.

*A. Types of Flights.* The only types of flights that can be credited towards proving test requirements are described in the following subparagraphs:

(1) *Representative En Route Flights.* Representative en route flights are conducted in compliance with either Part 121 or Part 135, applicable sections of Part 91, and other applicable rules, including Part 108, Airplane Operator Security, and Title 49, Part 178, Hazardous Materials. Before an applicant may conduct these flights, the test team must be satisfied that the applicant's phase three review has been completed.

(2) *Ferry Flights or Flights of Provisionally Certificated Aircraft.* Ferry flights conducted under Part 91 and authorized under the provisions of FAR 21.197(a)(2) or (5) may be credited towards proving test requirements. In rare situations, an applicant may propose to use a provisionally certificated aircraft during proving flights under Part 121. To obtain FAA approval, the applicant must show that no feature, characteristic, or condition of the aircraft would make it unsafe when operated in accordance with FAR 91.317 and FAR 121.207 (for further information, see paragraph 1597 of this section).

(3) *Training Flights.* Training flights may be credited towards proving test requirements, provided that each flight is observed by an FAA inspector.

(4) *Positioning Flights.* A positioning flight is a flight conducted to move an airplane over a non-representative route, such as from the aircraft factory to the applicant's main base.

*B. Additional Requirements.* To credit ferry hours, hours flown in provisionally certificated aircraft, or training flight hours towards proving test require-

ments, the applicant's phase three review must have been completed. Also, the applicable manual must be in a state of completion that is acceptable to the test team for that applicant. Flights must be conducted in accordance with the following:

- Proposed Part 121 or Part 135 operations manual
- Proposed Part 121 or Part 135 inspection or maintenance programs
- Proposed minimum equipment list (MEL)
- Flight control requirements (dispatch, flight following, or locating) of Part 121 or Part 135
- Operations and maintenance recordkeeping requirements of Part 121 or Part 135

**1581. SITUATIONS REQUIRING PROVING TESTS.** Part 121 and Part 135 require aircraft proving tests for the following situations:

- During the certification process of an applicant proposing to conduct operations under Part 121
- During the certification process when a Part 135 applicant proposes to operate a type of turbojet aircraft or a type of aircraft for which two pilots are required for operations under visual flight rules (VFR)
- When a Part 121 applicant proposes to operate an aircraft that the applicant has not previously used
- When a Part 135 applicant proposes to add to its operations specifications (OpSpecs) an aircraft not previously used by the applicant and that is one of the following types: a turbojet aircraft or an aircraft for which two pilots are required for operations under VFR
- When a Part 121 applicant proposes to use an aircraft that has been materially altered in design
- When a Part 135 applicant proposes to use an aircraft that has been materially altered in design and that is one of the following types: a turbojet

aircraft or an aircraft for which two pilots are required for operations under VFR

- When an operator applies for a class of operations not currently authorized by the operator's OpSpecs (For example, an operator may request to transition from supplemental passenger to domestic passenger operations, or from supplemental cargo to supplemental passenger operations.)

**1583. PART 121 APPLICANT PROVING TEST REQUIREMENTS.** Requirements for newly manufactured aircraft, aircraft new to the applicant, and materially altered aircraft are as follows:

*A. Newly Manufactured Aircraft.* FAR 121.163(a) requires at least 100 hours of proving tests (in addition to aircraft certification tests) before a new type of aircraft can initially be introduced into Part 121 operations. This requirement applies to either new aircraft manufactured in the U.S. or to any foreign-manufactured aircraft that has not been operated previously by a U.S. certificate holder.

*B. Aircraft New to the Applicant.* FAR 121.163(b) requires that at least 50 hours of proving tests be conducted by an applicant proposing to use a type of aircraft for the first time when that type of aircraft has been previously proven by another operator in Part 121 operations.

*C. Materially Altered Aircraft.* FAR 121.163(b) requires an applicant to conduct at least 50 hours of proving tests when the type of aircraft to be used has been materially altered in design. Examples of materially altering an aircraft design include the following:

- Installation of engines that are a different type from those originally installed on the aircraft for type certification (for example, reciprocating-powered engines to turbine-powered engines, or low by-pass jet engines to high by-pass jet engines)
- Any design alterations that significantly affect flight characteristics (Principal operations inspectors (POI) may contact AFS-510 for guidance, if necessary, at (703) 661-0333.)

*D. New Class of Operation.* FAR 121.163(b) requires an operator using an airplane that it has not previously demonstrated in that class to conduct 50 hours of proving tests. Classes of operations are defined as commercial, supplemental, domestic, and flag operations.

**NOTE: An operator authorized to conduct flag operations is also authorized to conduct domestic operations. An operator authorized to conduct flag and domestic operations is**

**automatically authorized to conduct supplemental operations (for more information, see volume 3, paragraph 63).**

*E. Nighttime Requirements.* In situations where applicants are required by FAR 121.163(a) to conduct 100 hours of aircraft proving tests, at least 10 of those proving test hours must be conducted at night. FAR 121.163(b) does not specifically require night flights in the 50-hour program. When the night-hour requirement is not specified in the FAR, this determination is left to the discretion of the test team.

**1585. PART 135 APPLICANT PROVING TEST REQUIREMENTS.** FAR 135.145 requires a minimum of 25 hours of proving tests (in addition to aircraft certification tests) to be conducted by an applicant when the applicant has not previously proven that aircraft or an aircraft of the same make and similar design in any operations under Part 135. In addition, FAR 135.145(a) requires at least 25 hours of proving tests when an aircraft used by the applicant has been significantly altered in design. Significant alterations in the design of an aircraft include the following:

- Installation of engines that are a different type than those originally installed on the aircraft for type certification (for example, reciprocating-powered engines to turbine-powered engines)
- Any design alterations that significantly affect flight characteristics (If necessary, POI's may contact AFS-510 at (703) 661-0333 for guidance.)

**NOTE: Nighttime proving flights are only required for those Part 135 applicants that will be authorized to conduct night operations. FAR 135.145(a) requires 5 hours of aircraft proving flights to be conducted at night. When the night-hour requirement is not specified in the FAR, this determination is left to the discretion of the test team.**

**1587. DEVIATIONS TO PROVING TEST REQUIREMENTS.** FAR 121.163 and 135.145 authorize the FAA to grant deviations to proving test requirements. The applicant must comply with all other proving test requirements. (See section 7 for further direction and guidance for processing requests from applicants concerning reductions in proving test hours.)

**1589. REPRESENTATIVE NUMBER OF FLIGHTS INTO AIRPORTS.** FAR 121.163 and FAR 135.145 require an applicant to conduct a representative number of proving flights into en route airports. These are airports which the applicant plans to use in scheduled operations or is likely to use in



non-scheduled operations. Representative airports must be within the applicant's proposed areas of en route operations. If an applicant plans to conduct overseas and/or international operations, the applicant must conduct proving flights into domestic, overseas, and/or international areas. A determination of what constitutes a representative airport or area of en route operation (and the number of representative airports and areas) must be made by the FAA test team. This determination should include a consideration of factors pertinent to the proposed type of operation. Some of these factors are the same as those considered when approving a reduction to the proving test hours. These considerations are discussed in section 7.

**1591. CARRIAGE OF PASSENGERS AND CARGO.** Carriage of revenue passengers on proving flights is prohibited by FAR 121.163(e) and 135.145(b). The carriage of revenue cargo should be approved for any applicant that has appropriate Department of Transportation (DOT) economic authority to carry revenue cargo. Applicants seeking FAA certification that do not have appropriate DOT economic authority are not permitted to carry revenue cargo; however, the carriage of company or simulated cargo should be encouraged. It is FAA policy to encourage the carriage of cargo on representative en route proving flights, when possible. The carriage of cargo allows for a more comprehensive test of the applicant's capabilities.

**1593. CREW QUALIFICATIONS FOR PROVING TESTS.** Training flights may be credited

towards proving test requirements, provided crewmembers are undergoing training according to the applicant's initially approved flight training curriculum. Ferry flights may be credited towards proving tests, provided crewmembers and initial cadre check airmen have completed applicable proficiency, competency, and type-rating checks. Line checks and operating experience (OE) may be accomplished on proving flights.

**1595. WITHDRAWN—CHG 8.**

**1597. PROVISIONALLY CERTIFICATED AIRCRAFT.** Provisionally certificated aircraft are aircraft in the process of receiving either a type certificate or an amendment to an existing type certification. The use of provisionally certificated aircraft involves extensive coordination between the Regional Flight Standards Division (RFSD) involved, FAA Headquarters in Washington, D.C., and the appropriate certification directorate. Each proposal is uniquely processed and is beyond the scope of this handbook. Each inspector approached by a manufacturer or applicant for approval to use a provisionally certificated aircraft during proving flights shall forward the request to the Flight Standards National Field Office (FSNFO) through the RFSD.

**NOTE:** Part 135 does not contain an authorization to use provisionally certificated aircraft for proving flights.

**1598.–1602. RESERVED.**

[PAGES 3-746 THROUGH 3-750 RESERVED]

non-scheduled operations. Representative airports must be within the applicant's proposed areas of en route operations. If an applicant plans to conduct overseas and/or international operations, the applicant must conduct proving flights into domestic, overseas, and/or international areas. A determination of what constitutes a representative airport or area of en route operation (and the number of representative airports and areas) must be made by the FAA test team. This determination should include a consideration of factors pertinent to the proposed type of operation. Some of these factors are the same as those considered when approving a reduction to the proving test hours. These considerations are discussed in section 7.

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**NOTE:** Part 135 does not contain an authorization to use provisionally certificated aircraft for proving flights.

**1598.–1602. RESERVED.**

[PAGES 3-746 THROUGH 3-750 RESERVED]

## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 4. PLANNING THE PROVING TEST

**1603. APPLICANT'S PLAN FOR PROVING TESTS.** An applicant must submit a proving test plan at least 10 days in advance of any in-flight demonstration (including training or ferry flights) that the applicant desires to have credited toward the proving test requirements. Any subsequent change to the plan must be coordinated with the test team. The plan must contain at least the following information:

- Identification of the company coordinator who will serve as the primary proving test spokesperson
- A detailed schedule of all proposed flights, including dates, times, and airports to be used (The schedule should clearly differentiate which flights will be conducted for training, ferry, or representative en route flights.)

**NOTE:** It is FAA policy for 50 percent of the scheduled proving flight hours to consist of representative en route flights over routes and into airports which the applicant intends to serve.

- A list of names and positions of the flight crewmembers who will be participating on each flight
- A list of names, titles, and company affiliations of non-crewmember personnel whom the applicant intends to have on board each flight
- Any other information that the test team determines is necessary to properly plan and conduct the proving flight

**1605. APPLICANT'S PLAN FOR REDUCED PROVING TEST HOURS.** If the applicant requests a deviation to the FAR-required number of proving test hours, the request must be made by letter. The letter must transmit the applicant's plan, which is described in the previous paragraph, and it must include the additional information specified in section 7 of this chapter.

#### **1607. FAA PLANNING FOR PROVING TESTS.**

*A. Early Planning.* Development and implementation of the FAA's plan for observation and evaluation is of crucial importance to any proving test. The FAA

inspection team should begin planning in phase one of the proving test process. FAA planning should be completed as soon as possible after the inspection team receives the applicant's plan.

*B. Initial Review.* The inspection team must review the applicant's plan initially to determine if the appropriate documentation has been submitted. The plan must contain a realistic proposal that will permit the FAA to adequately observe and evaluate the applicant's overall abilities. This review should be accomplished within 5 working days after receipt of the applicant's plan. Based on the results of this initial review, one of the following actions must be taken:

*(1) Accept the Plan.* If the applicant's plan is feasible and satisfies regulatory and FAA policy requirements, the inspection team leader should verbally notify the applicant. Any changes should be negotiated and mutually agreed upon at this time. If the applicant's plan includes a request for deviation from the required number of proving test hours, formal acceptance by letter must follow. This letter must include a statement verifying that a deviation to the appropriate FAR is granted.

*(2) Return the Plan with Explanation.* If the applicant's plan lacks appropriate documentation or does not satisfy regulatory or FAA policy requirements, it must be returned to the applicant as soon as possible. A letter that briefly describes the principal reasons for the plan's return should accompany the plan.

**NOTE:** When the inspection team denies a request for deviation, the denial must be done by letter. This letter should contain any suggestions the team may have that would make the plan acceptable.

#### **1609. WITHDRAWN—CHG 8.**

**1611. OTHER PROVING TEST PARTICIPANTS.** FAR 121.163(e) and 135.145(b) limit the individuals who can participate in the in-flight portion of the proving tests to those who are required by the applicant to conduct the tests and to those "designated by the Administrator."

*A. U.S. Government Participants.* During the demonstration phase, an applicant exercises all aspects of its operation, such as flight control, communications, flight planning, and line maintenance. It is essential that this phase be devoid of distractions created by non-essential personnel. The test team may authorize the participation of any government or contractor employee, including those from other agencies. These personnel should be limited to those having specific tasks to perform and to inspectors accomplishing on-the-job training.

*B. The Applicant's Participants.* Many situations occur during proving flights that require decisions by company supervisory personnel to correct deficiencies observed during the flights. Therefore, the applicant's participants should include the following personnel:

- Initial cadre check airmen
- Directors of operations and maintenance (if applicable)
- Those supervisory personnel needed to act on behalf of the company if actions are required to resolve discrepancies

*C. Other Personnel.* Other personnel, such as representatives of engine and aircraft manufacturers, may be authorized to participate if their presence materially enhances the process.

**1613. COORDINATION.** During the development of the FAA plan to conduct proving tests, the FAA proving test team leader is responsible for coordinating all parts of the proposed tests. The applicant's representatives and crewmembers, and FAA participants, must understand and agree on which tasks must be accomplished to show compliance with regulatory requirements. The proving test team leader should notify the Regional Flight Standards Division (RFSD) of proving flight dates, times, and locations. The RFSD shall notify other RFSD's affected by the proposed proving flights and any future scheduled operations proposed by the applicant. The RFSD shall also notify AFS-510 of the proving flight schedule for Part 121 and Part 135 commuter operators. When planning proving tests, the test team should use the job aid in figure 3.9.2.1., Part 121/135 Proving and Validation Test Job Aid.

**1615. PRE-DEMONSTRATION TEST MEETING (FAA TEAM).** The proving test team leader shall conduct as many pre-demonstration test meetings as necessary to accomplish the following:

*A. Provide Schedules and Assignments.* The proving test team leader shall provide specific team members with schedules and assignments for the proving flights

(including flight times, locations, inspections, and reporting requirements).

*B. Evaluate the Applicant's Capabilities.* The proving test team leader shall establish in-flight and ground scenarios, simulated emergencies, and other means of testing the ability of crewmembers and the applicant to cope with actual operational contingencies independently and safely. The use of such scenarios is effective when evaluating the applicant's overall and specific abilities.

*(1) In-flight and Ground Scenarios.* Scenarios must be clearly understood by all team members in terms of individual roles and responsibilities. The proving flight team leader, however, must ensure that the applicant is not encumbered with so many simulated scenarios that a proper evaluation of its proposed routine operation is inhibited.

*(2) Emergency Scenarios.* Since the primary purpose of proving flights is to ensure basic compliance with the regulations and safe operating practices during routine operations, the proving flight team leader shall not permit compound emergency scenarios to occur. When other agencies, such as air traffic control (ATC) and airport authorities, need to be involved for safety reasons, the proving flight team leader must ensure that all scenarios are well coordinated. Should an actual emergency occur, all simulated scenarios shall be terminated.

*(3) Examples of Typical Scenarios.* The following scenarios may be useful for evaluating the applicant's capabilities:

- Diversion to alternate airports for reasons such as weather or maintenance (This tests the company's communications, maintenance, and other operational capabilities.)
- Minimum equipment list (MEL) or configuration deviation list (CDL) situations (This tests the crewmembers' understanding of specific operational limitations and the company's operations and maintenance procedures. (For example, dispatching with a simulated inoperative generator tests the company's ability to comply with the operational and maintenance provisions of the MEL.)
- Performance problems (This requires the aircrew and dispatch, or flight control personnel, to demonstrate competency and knowledge of items, such as aircraft performance, airport analysis programs, and alternative company procedures. For example, simulating an inoperative anti-skid or

thrust reverser while operating on contaminated runways (ice, slush, or snow) tests the company's ability to deal with performance issues.)

- Security and hazardous cargo situations (This requires the aircrew and other company personnel to function in accordance with established company procedures and FAA regulations.)

**NOTE: Hijack scenarios are prohibited during proving flights. Aircrew knowledge and company procedures must be examined by inspectors or security inspectors through other methods. The company's anti-hijack program shall not be exercised during proving flights.**

- Situations that exercise dispatch, flight-following, or flight-locating centers (This tests communications, weather information dissemination, and other flight information distribution abilities. An effective means for testing this capability is to position an inspector who has specialized dispatch knowledge in the flight control or flight-locating facility and (at a prearranged time) to initiate a scenario such as adverse destination weather that would require a diversion. This action tests the communications and weather reporting capability of the facility and also the company's procedural contingencies as demonstrated by the flightcrew.)

- Maintenance scenarios (A maintenance problem simulated at any location that the operator operates into should be planned, however minor, to test the company's ability to communicate and resolve problems that flightcrews may experience. Maintenance scenarios should be flexible enough to accommodate any real maintenance problems that could arise during a proving flight. Examples of the many possible maintenance problems include the following: an indicator out, a minor fluid leak, or the need to determine tire wear.)
- Simulated aircraft emergencies, such as an engine failure (This tests the flightcrew's knowledge and competency in handling emergency situations. It also tests company communications, maintenance, and other operational capabilities. Under no circumstances shall an inspector require an actual engine shutdown. Typically, this situation would result in a diversion.)
- Simulated incapacitated passengers in need of immediate medical assistance
- Simulated lavatory fire
- Simulated loss of pressurization
- Simulated landing gear extension or retraction problems

**1616.-1622. RESERVED.**

**[PAGES 3-754 THROUGH 3-758 RESERVED]**

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- Simulated lavatory fire
- Simulated loss of pressurization
- Simulated landing gear extension or retraction problems

**1616.-1622. RESERVED.**

**[PAGES 3-754 THROUGH 3-758 RESERVED]**

## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 5. PROVING TESTS: THE DEMONSTRATION PHASE

**1623. GENERAL.** The demonstration phase consists of the observation and evaluation of the applicant by Federal Aviation Administration (FAA) inspectors during proving flights. Proving flights consist of en route flights and other acceptable flights. These flights are described in more detail in the following paragraphs.

**1625. CONDUCT OF EN ROUTE FLIGHTS.** En route flights (representative en route) closely simulate the routine line operations that the applicant proposes to conduct. All flights in the en route segment must be observed and evaluated either in flight or at ground facilities. When a deviation for a reduced number of proving test hours decreases the required number of hours by 50 percent or more, all en route flights must be observed and evaluated by FAA inspectors on board the aircraft.

*A. Inspection Team Composition.* The onboard team of FAA inspectors must include an operations inspector, qualified on the specific aircraft, who directly observes the flightcrew and in-flight events, and reports those observations. For those operations that include Class II navigation or special use airspace, a navigation specialist or a pilot-qualified inspector who is knowledgeable in Class II operations should be a member of the test team. A dispatch-qualified inspector should also be included to observe the operational control functions. The majority of en route flights should also be observed by maintenance and avionics inspectors on board the aircraft. In addition to the in-flight activities, operations and airworthiness inspectors must also evaluate flight initiation, servicing and unscheduled maintenance, and flight termination activities. While representative en route flights are being conducted, other inspectors should observe the applicant's activities at appropriate ground facilities, such as operational or maintenance control centers.

*B. Pre-Demonstration Test Briefing with Applicant.* The proving test team leader shall conduct briefings with the applicant daily or as necessary to establish what the test team expects the applicant to accomplish

during each proving test. Briefings shall include at least the following items:

- The purpose of the proving test
- Status of the inspector in the jumpseat
- Status of the onboard team of inspectors (They shall be treated as passengers.)
- Changing status of passenger to FAA inspector when an FAA credential is revealed
- How simulated scenarios will be initiated, and what action is expected from the applicant
- How to react to an actual emergency during the proving test
- Copies of flight plans, load manifests, and other documents that are expected and that should be provided
- How maintenance discrepancies will be treated or terminated
- Debriefing at the conclusion of each day unless major problems require it sooner (Major discrepancies must be resolved before the proving test may resume the following day.)

*C. Determining Applicant Competency.* The FAA plan for inspecting and evaluating an applicant's competency during the en route segment should include scenarios and other testing mechanisms designed to test the applicant's effectiveness in each of the following five general areas:

- Flightcrew
- Cabin crew
- Airport/station facilities
- Operational control
- Company procedures

*(1) Flightcrew.* The FAA Team shall evaluate the competency and ability of the flightcrew throughout the en route segment. Examples of areas to be inspected and evaluated are as follows:

- Flightcrew qualification

- Aircraft performance (including flight characteristics)
- Aircraft flight manual limitations
- Aircraft normal, abnormal, and emergency procedures
- Aircraft systems and equipment
- Airport data (including knowledge of required runway lengths, field elevation, facilities, and gates or parking areas)
- Flight management and cruise control
- Company manuals and procedures
- Crew discipline, situational awareness, and crew management
- Crew vigilance and collision avoidance procedures
- Knowledge of en route structure, long-range navigation procedures (if applicable), and unique en route and area-of-operation requirements
- Knowledge of minimum equipment list (MEL) and configuration deviation list (CDL) procedures
- Knowledge of, and competency in, departure and arrival procedures
- Air/ground communications with the company and also with air traffic control (ATC)
- Check airman performance and effectiveness
- Adequacy of aircraft training program as demonstrated by the flightcrew
- Cabin crew and passenger briefings

(2) *Cabin Crew.* The FAA Team shall evaluate the cabin crew competency and ability during the en route segment. Examples of areas to be inspected and evaluated are as follows:

- Competency in all normal procedures associated with their assigned positions
- Knowledge of emergency procedures (including evacuation, fire fighting, pressurization problems, passenger illness or injury, baggage in the cabin, and exit seating)
- Knowledge of applicable manual procedures pertaining to duties and responsibilities
- Knowledge of procedures to follow when a crewmember is incapacitated

- Knowledge of verbal and non-verbal communication procedures between the cabin and cockpit (such as the number of chimes indicating imminent takeoff or landing)
- Training program effectiveness
- Cockpit coordination

(3) *Airport/Station Facilities.* The FAA Team shall determine whether the airports and the applicant's station facilities are adequate to support the specific aircraft and type of operation proposed by evaluating the following:

- Runways and taxiways
- Runway/taxiway lighting
- Approach lighting
- Navigational aids (NAVAID)
- Gate/ramp/loading areas (such as markings, congestion, and lighting)
- Station operations manuals, maintenance manuals, and facilities
- Ground crew qualifications and training (if applicable)
- Passenger enplaning and deplaning procedures
- Baggage and cargo loading
- Aircraft fueling and servicing
- Gate arrival and departure procedures and equipment

(4) *Flight Control, Dispatch, Flight-Following, and Flight-Locating Centers.* Examples of items to be inspected and evaluated at applicable locations are as follows:

- Flight planning
- Dispatch and flight release procedures
- Airport and route information collection and dissemination
- Drift-down and diversionary procedures
- Weather information collection and dissemination
- Dispatch and flight control personnel competency
- Communications capability with the company, with the aircraft, and with other agencies



- Load control (for example, the accuracy of the passenger count and the ability to convey weight and balance changes to and from the aircraft before takeoff)
- Scheduling
- Crew flight and rest time
- Manuals
- High minimums captains
- Maintenance control (procedures and records)
- Flightcrew briefings

(5) *Company Procedures.* Examples of company procedures and programs to be inspected and evaluated are as follows:

- Aircraft operations
- Ground operations/maintenance personnel
- Fueling facilities and equipment
- Security (public protection and restricted articles)
- Adequacy of training programs
- MEL and CDL procedures
- Procedures for accomplishing unscheduled and scheduled maintenance
- Hazardous materials (HAZMAT)
- Ability to conduct operations at unscheduled stops or alternate airports

**1627. CONDUCT OF OTHER FLIGHTS.** Other flights, such as training, positioning, or ferry flights may be counted toward proving flight hours. FAA observation of these flights allows inspection of the applicant's training, maintenance, and other programs.

**NOTE:** All training flights that are to be credited toward the proving test requirements must be observed by a qualified operations inspector.

*A. En Route Training.* During the en route segment, the company trains its initial cadre check airmen, instructors, and line crewmembers. Crewmembers also gain operating experience (OE) so that revenue operations may begin with minimum delay after certification. Since FAA inspectors function as observers during this phase, it is not appropriate for them to require simulated in-flight scenarios that would either disrupt airman training or delay these flights.

*B. Flight Attendant Training.* Flight attendant training may be conducted on board flights when flight

deck and flight attendant training goals are compatible.

**1629. TERMINATION OF THE EN ROUTE SEGMENT.** The test team may conclude the proving flight as follows:

*A. Completion as Planned.* Complete the planned proving flight schedule without significant change.

*B. Early Completion.* The tests may be concluded sooner than planned when all test objectives have been met and the applicant has demonstrated a repetitive ability to conduct line operations in compliance with regulations and safe operating practices. The team should be satisfied that the applicant will continue to function in a satisfactory manner. Before authorizing an early completion of the test, the team shall obtain the concurrence of the manager of the Certificate Management Office (CMO) or Flight Standards District Office (FSDO) and from the Regional Flight Standards Division (RFSD). The team must document the decision to terminate the en route segment earlier than planned with an appropriate Program Tracking and Reporting Subsystem (PTRS) comment (see section 6).

*C. Extension.* The tests may be extended beyond the point of scheduled termination. This action should be taken when the applicant has not completely demonstrated the ability to conduct operations in compliance with regulations and safe operating practices, but shows the potential to do so in a reasonable number of hours.

*D. Unacceptable Performance.* The team may terminate testing when it is apparent that the applicant is not capable of correcting deficiencies. When a decision is made to terminate proving tests due to extensive deficiencies, the following must be accomplished:

(1) *RFSD Concurrence.* The team leader shall immediately inform the RFSD of the reasons for the decision and receive the RFSD's concurrence before concluding testing.

(2) *Notification of Applicant.* The team leader shall then notify the applicant of the decision. A letter confirming the reasons for this decision shall be forwarded to the applicant. The letter should list deficient areas and specify corrective actions that must be taken before further en route testing may continue. This letter should also specify that a new proving test plan will have to be developed by the applicant and submitted to the FAA before further en route testing may resume (see figure 3.9.5.1.).

**1630.-1634. RESERVED.**

**FIGURE 3.9.5.1.**  
**EXAMPLE OF LETTER TO APPLICANT TERMINATING PROVING TEST**

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FAA Letterhead

[date]

Mr. Robert Smith  
Director of Operations  
ABC Airlines  
1 Park Avenue  
New York, NY 11021

Dear Mr. Smith:

This letter is to inform you that effective March 12, 1987, ABC Airlines' proving test demonstration flights with the B737 aircraft are hereby terminated by the Federal Aviation Administration (FAA) due to deficiencies that prevent ABC Airlines from achieving the standards as specified in Federal Aviation Regulation (FAR) 121.163(a).

Specifically, ABC failed to demonstrate compliance in the following three areas:

1. Dispatch: During two flights conducted on March 10, 1987, ABC dispatchers were unable to obtain required weather information for destination and alternate airports (FAR 121.599).
2. Required Crewmembers: On March 11, 1987, ABC attempted to operate flight number 216 without the required complement of flight attendants (FAR 121.391(a)(3)).
3. Maintenance: On March 12, 1987, ABC was unable to perform basic required maintenance and servicing of flight number 217 due to difficulties with its contracted maintenance agency. This resulted in the cancellation of three other flights scheduled for March 12 and all flights scheduled for March 13 (FAR 121.363(b)).

The FAA has determined that, in view of the above discrepancies, the continuation of proving tests is unwarranted and would serve no useful purpose. Before ABC may commence any additional proving tests for FAA consideration and evaluation, ABC must show that it has corrected the above deficiencies to the satisfaction of the FAA and submit another proving test plan and proposed schedule.

Sincerely,

[PAGES 3-763 THROUGH 3-768 RESERVED]

## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 6. REPORTING PROCEDURES

**1635. REPORT CONSTRUCTION.** The test team shall create a report of proving or validation tests by means of the Program Tracking and Reporting Subsystem (PTRS).

*A. Opening a Master PTRS Record.* When a test team is formed, the team leader shall ensure that a master PTRS record is opened. This PTRS entry will remain open until the team completes its assignment. Team leaders shall enter their assigned inspector identifiers in the "Inspector Name Code" field so that the team leader will be identified on the master record. The team leader shall ensure that an "O" is entered in the "Status: (COP)" field and that the appropriate PTRS codes are entered in the "Activity Number" field, as follows:

- 1202 for proving tests associated with an initial certification
- 1313 for proving tests associated with the addition of an aircraft type
- 1402 for validation testing associated with approval of a geographic area requiring Class II navigation (see volume 3, paragraph 1659A, B, and C)
- 1410 for validation testing associated with approval of special navigation procedures (see volume 3, paragraph 1659E)
- 1441 for validation testing associated with special performance authorizations (see volume 3, paragraph 1661)
- 1442 for validation testing associated with special operational authorizations (see volume 3, paragraph 1663)

*B. "Miscellaneous" Field Entries.*

*(1) Use of Alpha-Numeric Code.* When the master record is opened, the team leader shall ensure that the record identification (ID) number generated by the computer is entered in the "Miscellaneous" field.

*(2) Recording Individual Job Functions.* Each job function performed by a team member shall be reported by using the appropriate PTRS activity code and the individual inspector's identification code. The number placed in the "Miscellaneous" field of the master record shall be entered in the "Miscellaneous" field of all PTRS entries associated with the project. This procedure will allow any interested FAA inspector or manager to locate all records associated with the project.

*C. "COMMENT" Section Entries.* When the master record is opened, the test team leader shall ensure that a brief statement of the project's purpose is placed in "SECTION IV—COMMENT SECTION." The test team shall ensure that appropriate explanatory or descriptive information is entered in the "COMMENT" section of all PTRS entries. This procedure will ensure that the team captures all required data and will eliminate the need for the test team to complete a final written report.

*D. Progressive Comments on the Master Record.* As each of the five phases of the test process are completed, the team leader shall ensure that a comment showing the date the phase was completed is placed on the master record. This procedure will enable FAA Headquarters specialists and managers to call up the master record and to determine the status of the project.

**1637. CLOSING THE MASTER RECORD.** After the team has completed the project, the team leader shall ensure that a closing summary is placed in the "COMMENT" section of the master PTRS record. This summary should be written as an executive overview and should avoid lengthy discussions or repetition of explanations contained in individual PTRS entries. Once the summary has been completed, the master record should be closed. The following are suggested items for the summary:

- Total test hours planned and actually flown
- Major deficiencies that required significant corrective actions, and nature of corrections
- Major delays encountered in completing the project and reasons for those delays

**1638.-1642. RESERVED.**

**[PAGES 3-771 THROUGH 3-774 RESERVED]**

## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 7. REQUEST FOR DEVIATION OF PROVING FLIGHT HOURS

**1643. GENERAL.** Federal Aviation Regulations (FAR) 121.163 and 135.145 contain authority for the Federal Aviation Administration (FAA) to reduce the proving flight hours specified in the basic FAR. Improvements in technology, training methods, communications, and established safe operating practices may enable an applicant to demonstrate compliance with applicable regulatory requirements in less time than the hours specified. Advanced simulation, line-oriented flight training (LOFT) scenarios, loading and maintenance exercises, and operational research and statistical analysis are some of the means applicants may use to demonstrate competence. As part of the plan, the applicant may request a deviation from the applicable regulatory requirements. The request must explain how the applicant intends to demonstrate regulatory compliance with a reduced-hour program. If the applicant's plan contains a request for reduction, it must include at least the following additional information:

*A. Total Hours of Operation.* The plan must include the total number of hours that the applicant proposes to fly in the reduced program.

*B. Flight Experience Resume.* The plan must include a flight experience resume for each flight crewmember that the applicant intends to use during the proving flight. This resume must include the following:

- Certificates
- Total flight time
- Any previous experience in the aircraft being tested
- Years of experience with the applicant being tested and any other experience in Part 121 or Part 135 operations (as applicable)
- Other transport experience, such as military

*C. Justification Statement.* The statement must contain, but is not limited to, the following:

- Company experience with Part 121 or Part 135 operations

- Company experience with aircraft of the same group (Part 121), or type (Part 135)
- Company experience with the airports and areas of en route operation into which the aircraft will operate

*D. Other information.* The plan must include any other information requested by either the principal inspectors or the certificate program manager (CPM), if applicable, or any information that the applicant believes will be useful in justifying the reduction. Other information could include nighttime routes to be flown or special airports to be observed.

#### **1645. EVALUATING THE APPLICANT'S REQUEST.**

*A. Evaluation Considerations.* The following are topics that the test team should consider when evaluating the request:

(1) If the aircraft has not been used previously in air transportation by a U.S. certificate holder, to what extent has the aircraft been operated by foreign operators?

(2) For newly certificated aircraft, how familiar is the test team with the aircraft?

(3) For aircraft that are new to the applicant but that have been proven previously in Part 121 or Part 135 operations, to what extent is the overall operation affected by the new aircraft (changing from Part 135 to Part 121, domestic to flag)?

(4) To what extent is the new aircraft substantially different from aircraft previously flown by the applicant (such as changing from turboprop to turbojet, unpressurized to pressurized, or narrow-body to wide-body)?

(5) To what extent is the applicant's route structure affected (for example, inauguration of international routes and use of special navigation equipment)?

(6) What is the experience level of personnel involved in the operation (for example, flight and

cabin crewmembers' previous experience in the operation of this type of aircraft)?

(7) How does the applicant propose to conduct the proving flights (for example, a few long-range flights versus several short-range flights)?

(8) What level of management experience exists in the company with this type or similar type or make of aircraft?

*B. Flight Hour Reduction Guide.* Test teams should use figure 3.9.7.1. as a guide to determine whether a reduced flight hour program is suitable.

**FIGURE 3.9.7.1.  
FLIGHT HOUR REDUCTION GUIDE**

SITUATION	PERCENT REDUCTION
New aircraft not previously proven by another Part 121 or Part 135 operator	0%
New operator having no management experience with aircraft category and class	10%
Existing Part 135 operator having no management experience in Part 121 operations and vice versa	15%
Existing operator having no management experience with aircraft category and class	20%
New operator having management experience with aircraft category and class	20%
Existing operator having management experience with same category and class	25%

**1647. COORDINATION REQUIREMENTS AND APPROVAL AUTHORITY FOR PROVING FLIGHT DEVIATIONS.** Any deviations granted in

response to an applicant's request for a reduction in the required proving flight hours shall be coordinated and approved according to figure 3.9.7.2., as follows:

**FIGURE 3.9.7.2.  
COORDINATION REQUIREMENTS AND APPROVAL AUTHORITY FOR PROVING FLIGHT DEVIATIONS**

PERCENT REDUCTION	COORDINATION REQUIRED	APPROVAL AUTHORITY
Up to 25%	None	CMO or FSDO
More than 25%	RFSD	RFSD
More than 50%	AFS-510	AFS-200

*A. Letter of Approval/Denial of Deviation.* If the request for a deviation to the required number of proving flight hours is approved, the applicant shall be informed by letter that the deviation is approved. The letter approving the deviation must also indicate acceptance of the applicant's proving flight plan. If the request is denied, the applicant shall be informed of the decision by a letter that explains the reasons for denial.

*B. Conditions of Approval.* When a deviation is approved, the test team must ensure that the applicant understands the following: that the deviation specifies the minimum number of proving flight hours that must be planned and that additional proving flights may be required, should the applicant fail to demonstrate the ability to comply with all applicable regulations. The applicant should also be advised that potential

delays due to problems such as maintenance, additional crewmember training requirements, and weather, may extend the proving flight schedule,

which could affect the date the applicant intends to start revenue operations.

**1648.-1654. RESERVED.**

**[PAGES 3-778 THROUGH 3-782 RESERVED]**

delays due to problems such as maintenance, additional crewmember training requirements, and weather, may extend the proving flight schedule,

which could affect the date the applicant intends to start revenue operations.

**1648.-1654. RESERVED.**

**[PAGES 3-778 THROUGH 3-782 RESERVED]**



## CHAPTER 9. PROVING AND VALIDATION TESTS

### SECTION 8. VALIDATION TEST REQUIREMENTS

**1655. GENERAL.** This section contains guidance to be used by managers and inspectors for conducting validation tests. This guidance supplements the general guidance of section 2 and the reporting guidance of section 6 of this chapter.

*A. Regulatory Background.* Various regulations, such as FAR 121.93, 121.113, and 135.13(a)(2), require applicants to show the capability to conduct specific line operations safely and in compliance with regulatory requirements. One process by which an applicant demonstrates this capability to the FAA has come to be known as validation testing.

**NOTE:** The term, "applicant," as used in this section, means either a candidate applying for an operating certificate or a certificate holder requesting additional operating authority.

*(1) Validation Flights.* The most common method used by the FAA to validate an applicant's capability is to observe the applicant conduct flight operations. The FAA normally requires validation flights before initially issuing operations specifications (OpSpecs) paragraph B36, which authorizes operations beyond the scope of Class I navigation, or before granting authority (in paragraph B50) to conduct operations beyond the populated areas of the North American continent.

*(2) Validation Testing.* The FAR do not require an applicant to conduct actual flights when flights are not necessary for safety, considering the availability of adequate facilities and of able personnel to conduct the operation. Validation flights are expensive for the FAA and for the applicant. Inspectors should, therefore, avoid requiring applicants to conduct flights when they are not required. This section contains guidelines for teams to use in making this determination. In the interest of standardized treatment, Regional Flight Standards Divisions (RFSD) shall concur with team recommendations before teams deviate from the guidelines of this section.

*(3) Areas of Emphasis.* When the FAA conducts validation testing with or without an actual flight, an in-depth review is conducted of the applicable portions of the applicant's proposed procedures (especially

flight following), training programs, manuals, facilities, and maintenance programs.

*B. Combined Proving and Validation Flights.* Proving flights are conducted to show the applicant's capability to operate a specific type of aircraft. Validation tests are conducted so that an applicant can demonstrate its capability to operate over specific routes while using specific navigational equipment, or to operate within specified limitations in critical areas. Though proving and validation tests satisfy different regulatory requirements, it is acceptable for applicants to conduct both tests simultaneously.

**1657. SITUATIONS REQUIRING VALIDATION TESTS OR FLIGHTS.** This paragraph contains guidance for inspectors and test team leaders concerning those situations where validation flights or tests are required for compliance with FAR 121.93, 121.113, and 135.13(a)(2).

*A. Operations Outside U.S. Airspace.* When an applicant plans to operate to a destination outside of U.S. airspace, the test team must verify that the applicant has the required economic authority, knowledge of applicable national operating rules, and has completed adequate planning for the proposed operation. Normally, validation for this purpose alone does not require a flight.

*B. Class II Navigation Authorizations.* There are four situations in which validation testing is required in association with approval of Class II navigation (see also paragraph 1659):

- Initial approval
- Approval of the addition of a long-range navigation system or a flight navigator
- Operations into new areas
- The addition of special or unique navigation procedures

**NOTE:** Validation test team leaders involved in route or area approvals shall consult an FAA navigation specialist by telephone at one of the following two locations: the San Francisco (SFO) International Field Office (IFO)

at (415) 876-2765, or the New York (NYC) Flight Standards District Office (FSDO)-15 at (718) 553-1848, or with the AFS-510 operations section at (703) 661-0333. Test team leaders involved in validations covered in subparagraphs C and D should consult with AFS-510.

*C. Special Performance Authorizations.* Validation tests are required when an applicant proposes to conduct operations that require confirmation of the applicant's ability to operate an aircraft type within specified performance limitations. These limitations are based on the following situations (see also paragraph 1661):

- Character of the terrain (or extended over-water areas)
- Type of operation
- Performance of the aircraft

*D. Special Operational Authorizations.* Validation tests are required when an applicant proposes to conduct in-flight or ground maneuvers that require special operational authorizations (see paragraph 1663).

**1659. CLASS II NAVIGATION AUTHORIZATIONS.** When applicants are initially certificated, they are issued OpSpecs paragraphs that authorize Class I navigation. Before adding a geographic area to OpSpecs paragraph B50, in which Class II navigation is required, test teams must validate the applicant's capability to safely conduct these operations. (See volume 4, chapter 1 for a definition of Class II navigation.)

*A. Initial Approval.* When an applicant has no prior authorization to conduct Class II navigation, a validation flight is normally required before the team may issue OpSpecs paragraph B36 or add appropriate geographic areas to paragraph B50. These areas include the following:

- Remote and extensive land areas not served by reliable International Civil Aviation Organization (ICAO) surface-based navigational aids (NAVAID)
- Extensive over-water areas beyond the range of surface-based navigation facilities

*B. Authorization for Long-Range Navigation Systems or a Flight Navigator.* Validation is required when an applicant that already has Class II navigation authorization proposes to add authorization for a new long-range system/aircraft combination or an authorization for a flight navigator to OpSpecs paragraph B36.

*(1) Long-Range Systems.* Long-range navigation systems include the following:

- Loran-C
- Omega
- Inertial navigation systems (INS) and inertial reference systems (IRS)
- Doppler
- Global Navigation Satellite System (GNSS), when approved
- Any combination of the preceding systems

**NOTE:** For further guidance on any navigation system not listed here, contact AFS-510.

*(2) Validation Testing in Lieu of a Validation Flight.* When validation is conducted to add a new aircraft/navigation system combination to paragraph B36 of an applicant's OpSpecs, a validation is normally conducted by means of a flight. RFSD's may approve validation by means of testing, however, when the applicant can show that the combination of aircraft/navigation system and operation is not significantly different from those the applicant is currently authorized, or with which the applicant can show satisfactory current experience. When validation is conducted without a flight, the applicant must show training and qualification of flightcrews in accordance with FAA guidance material and acceptable equipment procedures (see paragraph 1667 in this section). Test teams can determine the current level of flightcrew training and qualification by conducting oral tests of knowledge and procedures and by evaluating flight records. The following examples are situations where validation testing may be authorized in lieu of validation flights:

- An applicant with a satisfactory history of conducting Class II navigation by using an LR-55/Delco Carousel IV INS combination proposes to add the Delco IV INS to a G-II that the applicant is already authorized to operate in Class I airspace
- An applicant for an additional Class II route authorization under Part 135 can show a previous history of successful operation of that aircraft and equipment combination in extended Class II operations under Part 91

*C. Additional Geographic Areas.* Applicants requesting authority to operate in additional geographic areas (other than special areas) may normally be authorized to do so without the need to complete a validation flight. As a minimum for this situation, the test team must verify that the applicant has the required economic authority, knowledge of

applicable national operating rules, and has completed adequate planning for the proposed operation. Test teams may determine, however, that the specific circumstances require a flight.

*D. Special Areas of Operation.* Certain areas of Class II airspace are considered special operating airspace for purposes of validation.

(1) *Extensive Areas of Magnetic Unreliability (OpSpecs paragraph B40).* Due to the nature of the procedures involved, applicants are required to conduct validation flights through these areas before being issued OpSpecs paragraph B40. RFSD's may approve validation by means of testing in lieu of flights when an applicant that already holds OpSpecs paragraph B40 proposes to operate new combinations of aircraft and navigation systems in these areas. The applicant must show that the required procedures are not significantly different from those currently authorized.

(2) *North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace and Canadian MNPS Airspace (OpSpecs paragraph B39).* Approvals for these two blocks of airspace are normally conducted concurrently. Due to the navigational tolerances and the procedures involved, applicants are required to conduct validation flights through these areas before being initially authorized to conduct revenue operations in these areas. In some cases (such as with the use of Omega systems), the applicant may be required to conduct flights and collect data outside MNPS airspace before conducting a final validation flight through the airspace. Initial validation flights, as described in subparagraph A of this paragraph, may be conducted in North Atlantic or Canadian MNPS airspace if the required navigational accuracy was demonstrated before the supplemental type certificate (STC) was issued. An applicant for an authorization to operate new combinations of aircraft and navigation systems (an applicant that already holds OpSpecs paragraph B39) may be required to conduct validation flights to have that combination added to paragraph B36, but the applicant is not normally required to conduct those flights through MNPS airspace.

**NOTE: Inspectors should inform operators seeking MNPS approval that they should collect Omega data in North Atlantic airspace, either under or over MNPS airspace.**

(3) *Central East Pacific (CEPAC) Composite Airspace (OpSpecs paragraph B37) and North Pacific (NOPAC) Airspace (OpSpecs paragraph B38).* During validation for approval of CEPAC and NOPAC areas, test teams should focus on flight planning, especially for engine-out and loss of pressurization contingencies. An applicant that already holds OpSpecs paragraph B36 and has a satisfactory operating history

in extended Class II navigation is normally not required to conduct a validation flight to be issued CEPAC or NOPAC operating authorization. An applicant for an authorization to operate new combinations of aircraft and navigation systems may be required to conduct validation flights before that combination is added to paragraph B36, but the applicant is not normally required to conduct those flights through CEPAC or NOPAC airspace.

(4) *Arctic Ocean and Antarctica Airspace (OpSpecs Paragraph B50 and Usually B36 and B40).* Applicants proposing to conduct terminal area operations within these areas are normally required to conduct validation flights. Applicants conducting over-flight but not terminal area operations are not required to conduct validation flights. During validation for approval of over-flight of these areas, test teams should focus on flight planning, especially for engine-out, loss of pressurization contingencies, and emergency airfield procedures.

**NOTE: Arctic and Antarctic operating approvals are separate and distinct from approval for areas of magnetic unreliability.**

(5) *Caribbean Sea, Gulf of Mexico, and the Atlantic Ocean West of the MNPS Boundary.* For operations into these areas, two independent high frequency (HF) transceivers are required; however, applicants may obtain the Air Transport Association of America (ATA) exemption from AFS-240 in order to operate in this area with one HF transceiver. An applicant may apply for approval to conduct Class II navigation across the Gulf of Mexico by using dead reckoning (DR) navigation supplemented by a GNSS receiver that meets the requirements of Technical Standard Order (TSO) C-129. Approval for this type of operation requires an amendment to the operator's OpSpecs. Under these circumstances, a flight may be outside Class I airspace for not more than 1 hour and must be on a direct route between two surface-based NAVAID's. Authorized routes are as follows: published, direct, very high frequency omnidirectional range (VOR) and low frequency airways between the coasts of Louisiana and Florida and between Texas and the Yucatan peninsula (see also volume 4, paragraph 161B). This approval does not require a proving flight when the following circumstances exist:

- The applicant has developed acceptable procedures for this type of operation
- The applicant has an approved training program for these procedures
- Each pilot-in-command (PIC) and second-in-command (SIC) demonstrates to a check

airman proficiency in the procedures for these operations

(6) *Politically Sensitive Areas of Operation.* When an inspector requires information concerning an operator's request to conduct operations into sensitive international areas, the inspector should follow the guidance in volume 4, chapter 1, section 5, paragraph 157.

*E. Special or Unique Navigation Procedures.* Validation flights are normally required when an applicant proposes to use navigation procedures that have not been previously demonstrated. These procedures include the following:

- Pilotage, including dead reckoning (DR)
- Flight navigator procedures
- Celestial navigation
- Pressure pattern and Bellamy drift DR
- Free gyro or grid procedures
- Any combination of the preceding procedures

**1661. SPECIAL PERFORMANCE AUTHORIZATIONS.** The following are examples of operational situations that normally require validation tests and special performance authorizations for each type of aircraft to be used by an applicant:

- Terminal area operations in areas of mountainous terrain requiring drift-down or specialized contingency procedures
- Part 121 operations in the North Atlantic Area of Operations (NAT-OPS) when all points on routes are within 60 minutes of an adequate airport (OpSpecs paragraph B41)
- Part 121 extended-range operations with two-engine airplanes (ETOPS) over routes containing a point farther than 60 minutes' flying time from an adequate airport (deviation from FAR 121.161) (OpSpecs paragraph B42)
- High altitude airport operations (OpSpecs paragraph TBD)
- Powerback operations (reverse thrust taxi) (OpSpecs paragraph C65)
- Unimproved runway operations (OpSpecs paragraph TBD)
- Helicopter or seaplane operations in highly congested urban areas (OpSpecs paragraph TBD)

**1663. SPECIAL OPERATIONAL AUTHORIZATIONS.** Validation tests are normally required when proposed operational situations require special

equipment and a special operational authorization for each type of aircraft used. Some examples follow:

- Category II instrument approach and landing systems (OpSpecs paragraph C59)
- Category III instrument approach and landing systems (OpSpecs paragraph C60)
- Use of automatic landing systems for landing operations (OpSpecs paragraph C61)
- Use of manually flown flight control guidance systems approved for landing operations (heads-up or heads-down flight control systems) (OpSpecs paragraph C62)
- Use of airborne radar approach (ARA) systems (OpSpecs paragraph TBD)
- Area navigation (RNAV) systems certified in accordance with Advisory Circular (AC) 90-45, Approval of Area Navigation Systems for Use in the U.S. National Airspace System, (OpSpecs paragraph B34)
- Use of RNAV systems for approach and landing operations (OpSpecs paragraph B34)

#### **1665. PLANNING THE VALIDATION TESTS.**

An applicant that is required to conduct a validation test must develop and submit a test plan. The plan and test objectives must be specifically tailored to the situation. The following guidelines should be followed by the FAA team and the applicant in planning validation tests:

*A. Form and Content of the Test Plan.* The variety of operational situations and requirements that determine the make-up of validation tests makes it impossible to specify the form and content for each validation test plan. Regulations; AC's; specific instructions in this handbook; FAA Order 8300.10, Airworthiness Inspector's Handbook; and other official sources have been developed to assist the applicant and FAA inspectors in determining the necessity of validation testing and the planning of validation tests. In many situations, these documents contain specific procedures that must be followed or that provide acceptable methods that an applicant can use to acquire a special authorization.

*B. FAA Test Team and Applicant Coordination.* The applicant and test team must agree on the form and content of the test plan, and they must establish mutual understandings of test objectives, the degree of demonstration required, and the criteria to be met. During development of the plan, the applicant should be encouraged to coordinate with and confer frequently with the FAA team concerning the make-up of the

validation tests and the methods to be used in conducting them.

*C. Operational Demonstrations.* Most validation tests will require some form of operational demonstration. When operational demonstrations are required, the validation test plan must include a schedule for those demonstrations.

*D. Determining Number of Flight Hours.* A required number of hours for a validation flight is not specified by regulation and must be determined on a case-by-case basis. When the test objectives can be adequately met, the test team may reduce flight hours to zero.

*E. Revisions to Applicant Documents and Training Program.* Most special authorizations require revisions to the applicant's checklists, minimum equipment lists (MEL), general operations manual (GOM), general maintenance manual (GMM), and training program. These revisions should be submitted with the validation test plan for FAA review and approval or acceptance, as appropriate.

*F. Amendment to OpSpecs.* All special authorizations require an amendment to the OpSpecs; the applicant should apply for the amendment at the same time the validation plan is submitted.

**1667. AREAS EVALUATED ON VALIDATION TESTS OR FLIGHTS.** The types of activities and items that need to be inspected and evaluated on validation tests or flights vary with the type of authorization requested by the applicant. The following list provides examples of activities and items requiring inspection and evaluation.

- Flightcrew training (and flight attendant training, if applicable)
- Operations manual information and crew procedures
- Checklists and MEL's
- Maintenance manual information and maintenance program
- Equipment certifications and installation approvals
- Reliability and accuracy of applicable operational and maintenance records
- Operational flight control and company communication capabilities
- Flightcrew competency in use of equipment, procedures, and techniques
- Coordination procedures between the flightcrew, maintenance personnel, and other ground personnel

**1669. CARRIAGE OF REVENUE PASSENGERS ON VALIDATION FLIGHTS.** The FAR do not forbid the carriage of revenue passengers on validation tests. With the concurrence of the respective RFSD, the test team may authorize the applicant to carry revenue passengers aboard the validation flight when the proposed operation is similar to those in the applicant's previous experience. This paragraph contains guidelines for teams to use in making this determination. In the interest of standardized treatment, RFSD's shall coordinate with AFS-510 when authorizing teams to deviate from these guidelines. AFS-510 will coordinate with other appropriate parties, including AFS-200.

*A. Non-Permissible Situations.* The carriage of revenue passengers shall not normally be permitted during validation tests in the following situations:

- When the applicant is seeking initial approval to conduct Class II navigation as described in paragraph 1659A
- When the applicant is seeking approval to conduct Class II navigation by a long-range navigation system or using a flight navigator when the applicant has not previously been approved for that means of navigation as described in paragraph 1659B
- When the applicant is seeking approval to conduct Class II navigation by means of a long-range navigation procedure that has not previously been approved for that applicant as described in paragraph 1659E
- When the applicant has not previously operated a specific aircraft type in operations that require a special performance authorization as described in paragraph 1661

*B. Exceptions to Subparagraph A.* In the preceding situations, test teams may consider permitting the carriage of revenue passengers if the applicant meets the following conditions:

(1) *Use of a Previously Authorized System.* For those applicants seeking approval to conduct Class II navigation by means of a new system of long-range navigation (using a flight navigator) or by means of a new procedure, the applicant may use a previously authorized navigation system as an independent means of verifying position.

(2) *Previous Demonstration of Competence.* For operations requiring a special performance authorization, the applicant must have already successfully demonstrated competence by safely conducting those operations, using the necessary special performance, in the specific aircraft. This may have been accom-

plished through an approved flight simulation test program, or in an actual aircraft flight test program (non-revenue) in the specific aircraft.

*C. Special Operational Authorization.* For operations requiring a special operational authorization for approach and landing operations (paragraph 1663), the carriage of revenue passengers should normally be permitted, provided higher minimums or visual flight rules (VFR) operations are specified during the validation tests.

*D. Additional Considerations.* The following factors should be considered in all cases:

- The applicant's previous experience with the proposed operation, the specific aircraft, and equipment combinations
- The FAA's previous experience with the proposed operation, the specific aircraft, and equipment combinations

- The in-service history and performance considerations of any new airplane, component, appliance, or other piece of equipment
- The degree of backup system redundancy and sole dependency of any particular system, appliance, or component

**1671. SPECIAL AUTHORIZATIONS INFORMATION TABLES.** The tables that follow in figures 3.9.8.1. through 3.9.8.3. are designed as a general information reference for validation tests. They are not intended as and must not be used as an all-inclusive source of information. Detailed guidance for various types of validation tests are provided in referenced AC's (see figure 3.9.8.4. for a listing of AC's applicable to various types of validation tests).

**1672.-1680. RESERVED.**

FIGURE 3.9.8.1.A.

**QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS**  
**A. AREAS REQUIRING SPECIAL NAVIGATION EQUIPMENT OR PROCEDURES VALIDATION TESTS**

<b>SPECIAL AUTHORIZATIONS</b>	<b>OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS</b>	<b>HIGHER HQTRS REVIEW AND CONCURRENCE</b>	<b>REVENUE PASSENGER CONSIDERATIONS</b>	<b>FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES</b>	<b>REMARKS</b>
1. Extensive Land Areas with Inadequate NAVAID'S to conduct Class I Nav or Class II Nav Supplemented by D.R. Procedures	B36 and B50	Not req'd.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4. AC 90-79 Other refs dependent on type of Nav equip. and areas (see following figures).	Usually requires Class II Nav equip. If Class II Nav equip. not required, special Nav procedures are required.
2. Extensive Over-Water Areas with Inadequate NAVAID's to conduct Class I Nav or Class II Nav Supplemented by D.R. Procedures	B36 and B50	Not req'd.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4. AC 90-79, AC 90-76 Other refs dependent on type of Nav equip. and areas (see following figures).	Usually requires Class II Nav equip. If Class II Nav equip. not required, special Nav procedures are required.
3. Extensive Areas of Magnetic Unreliability	B36, B40, and B50 B36 not req'd. if Class II Nav equip. not required	RFSD	No revenue on flights into area if aircraft, Nav equip., and Nav procedures not previously approved for that applicant in areas of magnetic unreliability	Vol 4, chpt. 1, sections 1, 2, 4, and (TBD). AC 120-33	Usually requires Class II Nav equip. Special procedures requires, free gyro, grid, etc. Flight in reference to true north.
4. North Atlantic Minimum Navigation Performance Specifications (NAT/MNPS) Airspace	B36, B39, and B50	RFSD	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4. AC 120-33	Class II Nav equip. required. No flight navigator. Pass/Fail criteria. Requires Pass criteria to be met before operating into area unless other approved Nav equip. used as primary.
5. Canadian MNPS Airspace	B36, B39, and B50 Usually req's B40	RFSD	No revenue on first flight in area of magnetic unreliability if aircraft, Nav equip, or Nav procedures not previously approved for the area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	Class II Nav equip required. No flight navigator. Automatically approved if approved for NAT/MNPS, provided applicant not authorized in area of magnetic unreliability.

FIGURE 3.9.8.1.A.—Continued

**QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS**  
**A. AREAS REQUIRING SPECIAL NAVIGATION EQUIPMENT OR PROCEDURES VALIDATION TESTS**

<b>SPECIAL AUTHORIZATIONS</b>	<b>OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS</b>	<b>HIGHER HQTRS REVIEW AND CONCURRENCE</b>	<b>REVENUE PASSENGER CONSIDERATIONS</b>	<b>FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES</b>	<b>REMARKS</b>
6. Central East Pacific Composite (CEPAC) Airspace	B36, B37 and B50	Not req'd.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	Usually requires Class II Nav equip. No flight navigator.
7. North Pacific (NOPAC) Airspace	B36, B38, and B50	Not req'd	No revenue if aircraft and Nav equip not previously approved for the area or a similar area for that applicant.	Vol 4, chpt. 1, sections 1, 2, and 4.	Class II Nav equip required. No flight navigator above FL280.
8. Arctic Ocean & Antarctic Airspace	B50 Usually req's B36 and B40	Not req'd for Arctic Ocean. Req'd for Antarctic airspace AFS-510.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	May involve flight into areas of magnetic unreliability (see item 3 and 5 of this figure).
9. Low-Level Helicopter Offshore Areas with Inadequate NAVAID's to Conduct Class I Nav or Class II Nav Supplemented by D.R. Procedures	Usually req's B36	Not req'd.	No revenue if aircraft and Nav equip. not previously approved for the area or a similar area for that applicant	Vol 4, chpt. 1, sections 1, 2, and 4.	
10. Politically Sensitive Areas Requiring Special Nav Procedures	B50 Usually req's special provisions and limitations on OpSpecs	AFS-510 and AIA-100 review/concurrence	As directed.		



**FIGURE 3.9.8.1.B.**  
**QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS**  
**B. TYPES OF SPECIAL NAVIGATION EQUIPMENT VALIDATION TESTS**

<b>SPECIAL AUTHORIZATIONS</b>	<b>OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS</b>	<b>HIGHER HQTRS REVIEW AND CONCURRENCE</b>	<b>REVENUE PASSENGER CONSIDERATIONS</b>	<b>FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES</b>	<b>REMARKS</b>
1. Area Navigation Systems Certificated in Accordance With AC 90-45	B34 and B50 B36 if the system is authorized for Class II Nav	Not req'd.	No revenue if Nav system not previously approved for that applicant and no other approved system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, 3, and 4. AC 90-45 AC 20-101	TBD
2. Loran-C Navigation Sys- tems	B50 B34 if system certificated IAW AC 90-45. B36 if system is authorized for Class II Nav	Not req'd.	No revenue if Nav system not previously approved for that applicant and no other approved system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, 3, and 4. AC 90-79	
3. Omega or Omega/VLF Navigation Systems	B36 and B50 B34 is system certificated IAW AC 90-45. B35 if authorized.	Not req'd.	No revenue if Nav system not previously approved for that applicant and no other approved system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, and 4. AC 90-79 AC 20-101 AC 120-37 AC 120-31	
4. Inertial Navigation Sys- tems (INS)/Inertial Reference Systems (IRS)	B36 and B50 B34 if system certificated IAW AC 90-45. B35 if authorized.	Not req'd	No revenue if Nav system not previously approved for that applicant and no other approved system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, and 4. AC 90-79 AC 121-13 Part 121. Appendix G	
5. Doppler Navigation Sys- tems	B36 and B50	RFSD and Nav spe- cialist review/concur- rence	No revenue if Nav system not previously approved for that applicant and no other approved system used as a primary Nav reference	Vol 4, chpt. 1, sections 1, 2, and 4 Part 121, Appendix G	

**FIGURE 3.9.8.1.B.—Continued**  
**QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS**  
**B. TYPES OF SPECIAL NAVIGATION EQUIPMENT VALIDATION TESTS**

<b>SPECIAL AUTHORIZATIONS</b>	<b>OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS</b>	<b>HIGHER HQTRS REVIEW AND CONCURRENCE</b>	<b>REVENUE PASSENGER CONSIDERATIONS</b>	<b>FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES</b>	<b>REMARKS</b>
6. Global Positioning Satellite Navigational Systems	TBD	AFS-400	TBD	TBD	TBD
7. Combination of the preceding systems	TBD	TBD	TBD	TBD	TBD

**FIGURE 3.9.8.1.C.**  
**QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS**  
**C. TYPES OF SPECIAL PROCEDURES AND/OR TECHNIQUES VALIDATION TESTS**

<b>SPECIAL AUTHORIZATIONS</b>	<b>OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS</b>	<b>HIGHER HQTRS REVIEW AND CONCURRENCE</b>	<b>REVENUE PASSENGER CONSIDERATIONS</b>	<b>FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES</b>	<b>REMARKS</b>
1. Pilotage, Including Dead Reckoning	B50	Not req'd	Depends on individual situation, area to be approved and inspector judgment	TBD	TBD
2. Flight Navigator Procedures/Techniques	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if flight navigator not previously approved for that applicant	TBD	TBD
3. Celestial Navigation	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if this Nav technique/procedure not previously approved for that applicant	TBD	TBD
4. Pressure Pattern Bellamy Drift Dead Reckoning	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if this Nav technique/procedure not previously approved for that applicant	TBD	TBD
5. Free Gyro and Grid Procedures	B36 and B50	RFSD and Nav Specialist review/concurrence	No revenue if this Nav technique/procedure not previously approved for that applicant	TBD	TBD
6. Combinations of the preceding procedures/techniques	TBD	TBD	TBD	TBD	TBD

FIGURE 3.9.8.2.

## QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS VALIDATION TESTS

SPECIAL AUTHORIZATIONS	OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS	HIGHER HQTRS REVIEW AND CONCURRENCE	REVENUE PASSENGER CONSIDERATIONS	FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES	REMARKS
1. Operations Into Areas of Precipitous Mountainous Terrain	TBD	RFSD	TBD	TBD	TBD
2. Part 121 Extended-Range Operations With Two-Engine Airplanes (ETOPS) With a Deviation (more than 1 hour)	B42, B50, B36, and A5. B39 required for MNPS air-space	AFS-510	TBD	Vol 4, chpt. (TBD) AC 120-42	TBD
3. Part 121 Extended-Range Operations With Two-Engine Airplanes in North Atlantic Airspace Without a Deviation (less than 1 hour)	B41, B50, and B36 B39 required for MNPS air-space	AFS-510	TBD	Vol 4, chpt. (TBD) AC 120-42	TBD
4. High Altitude Airport Operations	TBD	RFSD	TBD	TBD	High Speed Tires Engines Oxygen Systems Special Performance Data
5. Power Back Operations	C65	Not req'd			
6. Unimproved Runway Operations	TBD	RFSD for turbojet aircraft	TBD	TBD	TBD
7. Helicopter or Seaplane Operations in Congested City Areas	TBD	TBD	TBD	TBD	TBD

**FIGURE 3.9.8.3.**  
**QUICK REFERENCE FOR SPECIAL NAVIGATION AUTHORIZATIONS VALIDATION TESTS**

<b>SPECIAL AUTHORIZATIONS</b>	<b>OPERATIONS SPECIFICATIONS (OPSPECS) PARAGRAPHS</b>	<b>HIGHER HQTRS REVIEW AND CONCURRENCE</b>	<b>REVENUE PASSENGER CONSIDERATIONS</b>	<b>FAA DIRECTIVES, ADVISORY CIRCULAR (AC) REFERENCES</b>	<b>REMARKS</b>
1. Category II Approach and Landing Operations	C59	RFSD	N/A	Vol 4, chpt. 2 AC 120-29	TBD
2. Category III Approach and Landing Operations	C60	RFSD	N/A	Vol 4, chpt. 2, section TBD AC 120-28	TBD
3. Use of Automatic Landing Systems for Landing Operations	C61	Not req'd	N/A	Vol 4, chpt. TBD FAR 121.579 FAR 135.93	TBD
4. Use of Manually Flown Flight Control Guidance Systems for Approach and Landing Operations	C62	RFSD	N/A	Vol 4, chpt. TBD	TBD
5. Use of Airborne Radar Approach Systems (ARA)	TBD	Not req'd	NO	Vol 4, chpt. TBD	TBD
6. Use of Area Navigation Systems for Approach and Landing Operations	C63	Not req'd	NO	Vol 4, chpt. TBD	TBD

**FIGURE 3.9.8.4.**  
**LIST OF APPLICABLE ADVISORY CIRCULARS (AC)**

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**NOTE:** Inspectors and test team leaders should consult AC 00-2.6, Advisory Circular Checklist, for the most recent edition of the following AC's.

AC 20-101, Airworthiness Approval of Omega/VLF Navigation Systems for the United States NAS and Alaska.

AC 91-XX, Oceanic Operations. (In final draft at time of publication of Change 8.)

AC 90-45, Approval of Area Navigation Systems for Use in the U.S. National Airspace System.

AC 90-76, Flight Operations in Oceanic Airspace.

AC 90-79, Recommended Practices and Procedures for the Use of Electronic Long-Range Navigation Equipment.

AC 90-92, Guidelines for the Operational Use of Loran-C Navigation Systems Outside the U.S. National Airspace System (NAS).

AC 120-17, Maintenance Control by Reliability Methods.

AC 120-28, Criteria for Approval of Category III Landing Weather Minima.

AC 120-29, Criteria for Approving Category I and Category II Landing Minima for FAR 121 Operators.

AC 120-31, Operational and Airworthiness Approval of Airborne Omega Radio Navigation Systems as a Means of Updating Self - Contained Navigation Systems.

AC 120-33, Operational Approval of Airborne Long-Range Navigation Systems for Flight Within the North Atlantic Minimum Navigation Performance Specifications Airspace.

AC 120-37, Operational and Airworthiness Approval of Airborne Omega Radio Navigational Systems as a Sole Means of Long Range Navigation Outside the United States.

AC 120-42, Extended-Range Operation with Two-Engine Airplanes (ETOPS).

AC 121-13, Self-Contained Navigation Systems (Long Range).

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**FIGURE 3.9.8.4.**  
**LIST OF APPLICABLE ADVISORY CIRCULARS (AC)**

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**NOTE:** Inspectors and test team leaders should consult AC 00-2.6, Advisory Circular Checklist, for the most recent edition of the following AC's.

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AC 120-37, Operational and Airworthiness Approval of Airborne Omega Radio Navigational Systems as a Sole Means of Long Range Navigation Outside the United States.

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AC 121-13, Self-Contained Navigation Systems (Long Range).

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aids are not required for operations over routes where celestial or other means of navigation are approved by the Administrator. Since all IFR primary en route and approach navigation facilities have historically been nonvisual ground aids (Standard ICAO NAVAID's), FAR 121.349 is intended to apply only to operations over routes predicated on VOR, VOR/DME, or NDB.

(b) FAR 121.349 applies *only* to Class I navigation operations and those Class II navigation operations predicated on VOR, VOR/DME, and/or NDB. FAR's 121.103, 121.121 and 121.389 apply to all other Class II navigation operations. The intent of FAR 121.349 is met when any Class I navigation operation is predicated on the following:

- VOR, provided dual independent VOR equipment is installed and operable in the airplane.
- NDB, provided dual independent ADF equipment is installed and operable in the airplane. However, if one ADF system and a dual independent VOR system are installed and operable, the intent of FAR 121.349 is met *provided* VOR NAVAID's are located at ground positions which would permit the flight to safely proceed (from any point along the route) to a suitable airport and complete an instrument approach without using ADF equipment.
- Area navigational systems, provided dual independent area navigation systems certified under AC 90-45A are installed and operable.
- Part B of the operations specifications permits (under specified conditions) an area navigational system fix to be substituted for an ICAO standard NAVAID when that facility is temporarily out of service.

(10) FAR 121.351—Radio equipment for extended-overwater operations and for certain other operations. This regulation applies only to Class I navigation and Class II navigation operations predicated on VOR, VOR/DME, and/or NDB. FAR 121.103, 121.121, and 121.389 apply to all other Class II navigation operations.

(11) FAR 121.357—Airborne weather radar equipment requirements. Airborne weather radar is normally used for thunderstorm detection and avoidance; however, Part B of the operations specifications requires weather radar to be used for ground mapping to assist in navigation when conducting certain operations in the North Pacific near Soviet airspace.

(12) FAR 121.355—Equipment for operations on which specialized means of navigation are used. This regulation limits the definition of "specialized means of navigation." It defines "specialized means of navigation" as INS and Doppler operations when operating outside the United States. FAR 121.355 is referenced in FAR 121.389 which requires "specialized

means of navigation" (INS or Doppler) to be approved in accordance with FAR 121.355. INS and Doppler are Class II navigational systems, however, today other types of navigational systems are approved for Class II operations.

(13) FAR 121.389—Flight navigator and specialized navigation equipment. The conceptual basis of this regulation is the phrase "when its position cannot be reliably fixed for a period of more than 1 hour."

(a) "Reliably fixed" as defined in the operations specifications means station passage of a VOR, VORTAC, or NDB. A "reliable fix" also includes a VOR/DME fix, an NDB/DME fix, a VOR intersection, an NDB intersection, and a VOR/NDB intersection provided course guidance is available from one of the facilities and the fix lies within the operational service volume of both facilities which define the fix.

(b) FAR 121.389 does *not* apply to those situations where the airplane's position can be reliably fixed, at least once each hour to the degree of accuracy required for the control of air traffic. If the operator can show compliance with FAR 121.103/121.121, the requirements of FAR 121.389 are automatically met by providing fixes more frequently than once an hour. Therefore, Class II navigation operations using Omega systems or automatic Loran C systems meet the requirements of FAR 121.103 or 121.121 and are approved under these regulations.

(c) Class II operations with Doppler and INS systems are approved under FAR 121.355 and Part 121 Appendix G.

(d) Class II navigation systems are divided into two categories.

- INS and Doppler systems are defined as "specialized means of navigation" and are addressed in FAR 121.389 and 121.355. They are self-contained, dead reckoning systems which have no "position fixing" capabilities.
- Loran C and Omega systems, however, are "position fixing" or "position keeping" devices which receive signals from an external source. Loran C and Omega are nonvisual ground aids and are addressed in 121.103 and 121.121, en route navigational facilities. In the future, GPS will also fit into this category.

(e) Class II navigation operations using VOR, VOR/DME, and/or NDB can be conducted under certain conditions (see section 4) provided the airplane's position is reliably fixed (at least once each hour) to the degree of accuracy required for the control of air traffic.

**25. PROTECTION OF PERSONS AND PROPERTY.** The need to ensure protection of persons and property both in flight and on the ground is fundamental to the FAR's. Many of the design and performance requirements in aircraft certification rules are established to provide this protection. This protection is also extensively addressed in the operating and equip-

ment rules related to air navigation. It is important that the regulations provide this protection equally to persons and property both in flight and on the ground. Approvals of route and areas of en route operation must take into account the need to protect persons and property on the ground as well as in flight.

**26.-30. RESERVED.**

**[PAGES 4-17 THROUGH 4-22 RESERVED]**

## CHAPTER 1. AIR NAVIGATION

### SECTION 2. AIR NAVIGATION APPROVAL REQUIREMENTS

**31. GENERAL.** This section contains direction and guidance to be used by inspectors for approving operator requests for air navigation operations. Inspectors approve these operations by issuing appropriate operations specifications (OpSpecs) paragraphs, such as B36. Except for Class I navigation, the approval process normally requires validation testing. The five phases of the validation test process are described in volume 3, chapter 9, section 2. Volume 3, chapter 9, section 8 contains a detailed discussion of validation testing requirements. This section provides additional guidance specifically related to air navigation requirements.

**33. INSPECTOR - SUBJECT FAMILIARIZATION AND APPROVAL REQUIREMENTS.** Once an operator has requested approval for air navigation operations, it is essential that inspectors fully understand the concepts, national policies, standard practices, direction, and guidance related to the area of proposed operations. Section 1 and subsequent sections of this chapter contain much of this information and contain additional references for more detailed information and guidance. In addition, FAA navigation technical specialists are available to assist principal inspectors in understanding, evaluating and approving air navigation operations. When processing operator requests for air navigation operations (especially for new approvals), principal inspectors should request guidance from a navigation specialist at one of the following locations: the San Francisco (SFO) International Field Office (IFO) at (415) 876-2765, the New York (NYC) Flight Standards District Office (FSDO)-15 at (718) 553-1848, or the operations section of AFS-510 at (703) 661-0333.

**35. DETERMINING THE CLASS OF NAVIGATION.** The first determination that must be made concerning an air navigation approval request is the category of operation proposed. The inspector must determine whether the proposed operation is Class I navigation, Class II navigation, or both. The decisive factor in this determination is the operational service volume of public navigational aids (NAVAID) within the proposed area of operation. If the minimum en route flight altitudes specified and the locations

of the public NAVAID's ensure that the flight will always be within the operational service volume, the entire en route operation is Class I navigation. In situations where the entire area of operation (at the minimum flight altitude specified) is outside (beyond) the operational coverage volume of public NAVAID's, the operation is Class II navigation. When portions of the proposed area of operation ensure that flights are continuously within the operational service volumes of public NAVAID's, that portion of the flight is Class I navigation, and the remaining portion is Class II navigation (see sections 3 and 4 of this chapter for in-depth discussions of Class I and Class II navigation).

*A. Flight Altitude.* It is important to understand that the minimum flight altitude is a key factor in the determination of the category of navigation (Class I or Class II). The operational service volume of a particular public NAVAID is heavily influenced by flight altitude. For example, at high altitude (above flight level (FL) 180), most very high frequency omnidirectional range stations (VOR) published for use at these altitudes have an operational service volume that extends to a radius of at least 130 nautical miles (nm) from the facility. However, at low altitudes (below 10,000 feet), the operational service volume of many VOR's seldom exceeds 40 nm. Therefore, it is highly probable that, for a route length of 260 nm between VOR's, operations above FL 180 would be Class I navigation and operations conducted below 10,000 feet would include both Class I and Class II navigation. The Class II navigation portion would begin at the edge of the operational service volume of the first VOR and end at the edge of the operational service volume of the second VOR. If the inspector determines that the proposal only involves Class I navigation, the direction and guidance in section 3 will be used. If the proposal involves both Class I and Class II navigation, the direction and guidance in sections 3 and 4 will be used for evaluation and approval or denial of the proposal.

*B. Range of NAVAID's.* Generally, determination of the exact range (operational service volume) of the NAVAID's intended to be used is not necessary. A

flight departing from the continental United States (U.S.) with a destination in Europe, for example, would obviously perform both Class I and Class II navigation and require equipment appropriate for both. In other situations it can be readily determined that flight operations will be conducted entirely within the operational service volume of federal NAVAID's. However, sometimes a determination of the exact range of a NAVAID is required to evaluate compliance with the requirement for a reliable fix once each hour. In the U.S., the frequency management branch in each region may be contacted to determine if a particular NAVAID has been flight-checked to a range greater than standard.

*C. U.S./Coastal Operations.* Within the U.S. and in nearby coastal areas under U.S. control, the Class I/Class II determination is simplified since any published instrument flight procedure (victor or jet airway, standard instrument departure (SID), or standard terminal arrival (STAR)) must be within the operational service volume of federal NAVAID's. Therefore, within the U.S., any route or fix published for instrument flight can be authorized for Class I navigation provided that the flight is conducted at or above the specified instrument flight rules (IFR) minimum altitude and at or below any IFR maximum authorized altitude specified.

*D. Foreign/Remote Operations.* In foreign countries and in oceanic/remote areas, this determination is more complex. In these cases, the determination is based on an equivalence to U.S. standards. In general, VOR, VOR/distance measuring equipment (DME) routes and fixes published in those areas are within the operational service volume (or foreign equivalent) of the NAVAID's specified. However, most air traffic service (ATS) routes based on nondirectional beacons (NDB) in oceanic/remote areas are Class II navigation over a considerable portion of the route. For example, the standard service volume (or coverage) of high-powered NDB's seldom exceeds 75 nm. (In special cases, a few NDB's have been evaluated by flight inspection and have an officially designated extended service volume significantly greater than 75 nm.) The flight inspection field office (FIFO) assigned responsibility for the geographic areas in question is the best and most up-to-date source of information on the operational service volume of these NAVAID's.

**37. SPECIAL OPERATIONS.** After determining whether a particular operation is Class I navigation, Class II navigation, or a combination of both, another important step is to determine if the operation involves any specific navigation authorizations to operate into special areas of operation or to use special navigation equipment or special navigation techniques.

*A. Special Areas of Operation.* Examples of special areas of operation include the following:

- Areas of magnetic unreliability
- North Atlantic Minimum Navigation Performance Specification (NAT/MNPS) airspace
- Canadian MNPS airspace
- Central East Pacific (CEPAC) Composite airspace
- North Pacific (NOPAC) airspace
- Sensitive international areas
- Arctic Ocean or Antarctic
- Western Atlantic, the Caribbean Sea, and the Gulf of Mexico
- South Atlantic and Gulf of Mexico control areas (Atlantic and Gulf routes)

*B. Special Navigation Equipment.* Examples of special navigation equipment include the following:

- Private NAVAID's or broadcast stations
- Area Navigation (RNAV)
- Long-Range Navigation (Loran-C)
- DECCA
- Tactical Air Navigation (TACAN)
- Omega
- Inertial Navigation Systems (INS) and Inertial Reference Systems (IRS)
- Doppler
- Global Navigation Satellite System (GNSS)

*C. Special Navigation Techniques.* Examples of special navigation techniques and/or procedures include the following:

- Pilotage
- Flight navigator
- Dead reckoning (DR)
- Celestial
- Pressure pattern
- Free gyro or grid

**39. AIRWORTHINESS OF NAVIGATION EQUIPMENT.** After determining the requirements related to any special operation, another important step is to determine whether the navigational equipment and systems are airworthy and can perform their required functions. In all cases, it is necessary for the

operator to provide written evidence that the proposed navigational systems and equipment are certificated for the type of operation (visual flight rules (VFR) or IFR) and the category of operation (Class I or Class II). In certain cases involving special areas of operation, such as areas of magnetic unreliability and NAT/MNPS, the airworthiness approval must reflect that these special requirements are also met. The written evidence may take the form of a type certificate (TC), supplemental type certificate (STC), or a Field Approval (FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance)). This determination must be coordinated closely with the principal avionics inspector (PAI), or the regional Flight Standards airworthiness branch.

*A. Class I Navigation.* In the case of Class I navigation with conventional navigation equipment (such as VOR, VOR/DME, NDB), a statement in the FAA-approved flight manual (or an STC) that the navigation system and/or equipment is approved for IFR flight is usually sufficient.

*B. Area Navigation (RNAV).* RNAV systems used for IFR Class I navigation (except operations in the U.S. positive control area (PCA)) must reflect a statement that the system meets the reliability and performance criteria of Advisory Circular (AC) 90-45, Approval of Area Navigation Systems for Use in the U.S. National Airspace System, (or equivalent). RNAV systems used for VFR operations (Class I and/or Class II) must reflect an approval for VFR use.

*C. Class II Navigation.* Class II navigation systems used for IFR operations must reflect a statement that the system is approved for IFR flight and, if required, for any special areas of operation. The following are examples of Class II navigation systems requiring airworthiness approvals:

(1) Omega systems used as the sole means of Class II navigation must be approved under the provisions of AC 120-37, Operational and Airworthiness Approval of Airborne Omega Radio Navigational Systems as a Sole Means of Long Range Navigation Outside the United States, (or equivalent).

(2) Omega systems used to update self-contained Class II navigation systems must be approved under the provisions of AC 120-31, Operational and Airworthiness Approval of Airborne Omega Radio Navigation Systems as a Means of Updating Self-Contained Navigation Systems, (or equivalent).

(3) Loran-C systems must be approved for the area of operation under the provisions of AC 20-121, Airworthiness Approval of Airborne Loran-C Navigation Systems for Use in the U.S. National Airspace

System (NAS), (or equivalent). See also AC 90-92, Guidelines for the Operational Use of Loran-C Navigation Systems Outside the U.S. National Airspace System (NAS).

(4) Inertial-based and Doppler systems must be approved under the provision of FAR Part 121.355 and Appendix G. This approval is not specifically required for Part 135, but the same approval criteria apply.

#### **41. TRAINING PROGRAMS AND MANUALS.**

Other important areas that must be considered are training programs and company manuals for the equipment used. The training programs and company manuals must adequately address the special characteristics of the proposed area of operation and the operational (navigation) practices and procedures that must be used. Other sections of this chapter provide additional direction and guidance on some specific requirements for training programs and company manuals for the various navigation systems and/or areas of operation.

**43. MINIMUM EQUIPMENT LISTS.** Additionally, most approvals of navigation equipment and/or areas of operation new to a particular operator also require changes to the company minimum equipment list (MEL). In all cases, principal inspectors shall review the company MEL to ensure that complete and accurate direction and guidance are provided to company personnel.

#### **45. NAVIGATION PRACTICES, TECHNIQUES, AND PROCEDURES.**

Navigation practices, techniques, and procedures are other important parts of the approval process. They are especially significant in long-range navigation systems and in operations using RNAV systems. The approval of these operations almost always necessitates changes in cockpit checklists and operating practices and procedures. Due to the complexity of these operations, the necessary changes must be determined on a case-by-case basis considering the operator, the equipment, and the area of operations. In the case of Class II navigation, it is FAA policy that the practices, techniques, and procedures in AC 90-79, Recommended Practices and Procedures for the Use of Electronic Long-Range Navigation Equipment, (or equivalent) shall be incorporated in the operator's approved long-range navigation programs.

#### **47. VALIDATION TESTING REQUIREMENTS.**

It is essential for the inspector to evaluate the need for validation testing. In a simple case, such as approving Class I navigation in additional areas within the U.S. using conventional VOR/DME systems, a validation test is not necessary. However, in

more complex cases, validation testing is essential to demonstrate the operator's capability and competence

to safely conduct the proposed operation (see volume 3, chapter 9, section 8).

48.-70. RESERVED.

[PAGES 4-27 THROUGH 4-32 RESERVED]

## CHAPTER 1. AIR NAVIGATION

### SECTION 3. CLASS I NAVIGATION

#### 71. GENERAL.

A. This section provides concepts, direction, and guidance which shall be used by FAA inspectors to evaluate and approve or deny requests for authorization to conduct Class I navigation operations not previously approved for a particular operator. This includes proposed Class I navigation operations using aircraft and/or navigation systems new to that operator, as well as Class I navigation operations into areas of en route operation new to that operator using previously approved aircraft and navigation systems. This section amplifies the general concepts, policies, and guidance provided in section 1 of this chapter. Specific “standard practices” are provided in this section for evaluating Class I navigation operations using navigation systems which, within particular areas of en route operations, have well understood operational characteristics and limitations. When an operator requests approval to conduct Class I navigation using a means of navigation not addressed by these standard practices, a request for direction and guidance must be forwarded through Regional Flight Standards Division to AFS-200.

B. Class I navigation is any en route flight operation or portion of a flight operation conducted in an area entirely within the officially designated operational service volumes of ICAO standard airways navigation facilities (VOR, VOR/DME, NDB). A detailed discussion of the Class I navigation concept is provided in sections 1 and 2. Any other en route flight operation is defined as Class II navigation. See section 4. The various types of Class I navigation and the evaluation and approval or denial processes for the specific types are discussed in the following paragraphs.

**73. VFR CLASS I NAVIGATION.** VFR Class I navigation is any Class I navigation operation conducted under visual flight rules in VFR conditions (VMC in most foreign countries). The primary objectives of VFR Class I navigation are as follows:

- Arriving at the intended destination with sufficient fuel remaining to safely complete a landing

- Operating with sufficient visual references to reliably “see and avoid” all obstacles along the actual routes of flight
- Operating with sufficient visibility to safely “see and avoid” all other aircraft
- Navigate with sufficient precision to avoid special use airspace areas and positive air traffic control areas or to comply with the special requirements of those areas
- Protecting persons and property on the ground which is an important factor in route selection and route approval especially for those aircraft which have inadequate “stay up” capability with an engine inoperative

A. Since the safe separation of aircraft under VFR is provided by “see and avoid” procedures, an inspector must assure that the flight conditions (ceiling and visibility) specified for an operation reliably permit application of this concept. In most cases, basic VFR weather minimums (FAR 91.105) are sufficient for the “see and avoid” concept. However, the requirements to arrive at the intended destination, avoid obstacles along the actual route of flight and to adequately protect persons and property on the ground are more complex. In general, basic VFR weather minimums are adequate to safely accomplish these objectives in uncongested areas which have numerous prominent landmarks and benign terrain/obstacle characteristics. Operations in other areas, however, generally require a case-by-case evaluation and may require flight conditions which require better seeing conditions than that provided by basic VFR weather minimums. In determining the degree of accuracy required for VFR operations, the inspector must consider the minimum flight conditions (ceiling and visibility) required for safe operations.

B. In the conduct of VFR flight, the prevention of collisions (safe separation from other aircraft) is solely the responsibility for the pilot-in-command (see and avoid). There are, however, regulatory requirements for use of navigation systems such as VOR for VFR operations in oceanic or desolated land areas or for

night VFR and VFR over-the-top operations. These regulatory requirements are related to locating the intended destination, avoiding obstacles along the actual route of flight, and the protection of persons and property on the ground.

#### 75. TYPES OF VFR CLASS I NAVIGATION.

These are two types of VFR Class I navigation. They are referred to as "pilotage" and "station-referenced."

*A. Pilotage.* One of the primary means of conducting VFR Class I navigation is by pilotage supplemented by dead reckoning. Pilotage is defined in FAR Part 1 as "navigation by visual reference to landmarks." Dead reckoning is defined in Advisory Circular 90-79 as "a method of directing an aircraft and estimating its position by the application of time, direction, and speed data to a previously determined (known) position."

(1) Pilotage is an appropriate means of navigation only in those areas and/or situations where the flight conditions (ceiling and visibility) are sufficient to consistently identify prominent landmarks and to "see and avoid" obstacles and other aircraft. Examples of prominent landmarks include villages, rivers, roads, valleys, ridges, transmission lines, and in some cases, lighted objects at night.

(2) Pilotage is not an appropriate means of VFR Class I navigation in areas or situations where prominent landmarks or light objects do not exist, or where these visual references are widely separated. For example, desolate areas without prominent and permanent features such as deserts, the Tar Pits in Canada, huge forests, certain Arctic areas, or large bodies of water such as parts of the Great Lakes and the Gulf of Mexico are areas where pilotage is not an appropriate means of navigation.

*B. Station-Referenced.* In situations where pilotage is not appropriate, it is necessary to use other means of conducting VFR Class I navigation to locate the intended destination, avoid obstacles, and protect persons and property on the ground. The means of providing this ability is to use electronic station-referenced (nonvisual) NAVAID's such as VOR, VOR/DME, NDB, Loran C, or Omega. In the future, this could also include space-based satellite systems such as NAVSTAR GPS.

(1) Conventional NAVAID's (VOR, DME, NDB) can be used to fly published routes. In this case, obstacle avoidance is provided if the operation is conducted at or above the published MEA or (if appropriate) the MOCA.

(2) Area navigation systems can be used to conduct VFR Class I navigation. Most area navigation systems are station-referenced systems (INS and Doppler are self-contained). Although these systems are referenced to specific navigation stations (VOR, VOR/DME, Omega, and Loran C), area navigation systems permit point-to-point navigation and are not limited to routes from one ground station to the next. Since the VFR navigation performance requirements are not as demanding as IFR requirements, operators can use area navigation systems for VFR which are not certificated for IFR en route operations (AC 90-45A). However, certain systems, such as Omega, and Loran C, must be certified as airworthy for VFR and must be installed in accordance with approved data.

#### 77. VFR CLASS I NAVIGATION APPROVALS.

General direction and guidance on air navigation approvals is provided in section 2. Specific direction and guidance for approving VFR Class I navigation is discussed in the following subparagraphs and in paragraphs 79, 81, and 83.

*A.* In determining the degree of accuracy required for pilotage and station-referenced VFR Class I navigation, an inspector must consider the minimum flight conditions necessary for safe operations. If it is determined that flight conditions better than basic VFR weather minimums are required for safe operations, the specific flight conditions (ceiling visibility or any other weather condition) must be specified in paragraph B50 of the operations specifications for the pertinent area or route. When making this determination for station-referenced Class I navigation, consideration should be given to the additional accuracy provided by the electronic navigation equipment. In addition, station-referenced navigation requires that the navigational equipment used is airworthy for VFR operations within the proposed area of operation and installed in accordance with approved data. The operator must provide written evidence of the airworthiness approval for the required equipment. When a minimum flight condition for either pilotage or station-referenced Class I navigation is specified in operations specifications, it must provide for the following criteria:

- Meets regulatory requirements for the operation
- Meets the standard practices in this handbook
- Meets the requirements of Part B of the operations specifications
- Provides accepted, safe operating practice
- Permits "see and avoid"



- Permits the identification and avoidance of obstacles
- Assures adequate protection of persons and property on the ground
- Permits reliable identification of prominent landmarks or lighted objects at night
- Permits reliable navigation to the intended destination

*B.* Pilotage and station-referenced approvals are granted by issuance or amendments to operations specifications. The areas of operation authorized for pilotage or station-referenced Class I VFR navigation along with any required minimum flight condition must be specified in Part B, paragraph B50 of the operations specifications. See volume 3, chapter 1.

#### **79. PART 135 PILOTAGE VFR CLASS I NAVIGATION STANDARD PRACTICES (TBD).**

#### **81. PART 135 STATION-REFERENCED VFR CLASS I NAVIGATION STANDARD PRACTICES (TBD).**

#### **83. PART 121 STATION-REFERENCED VFR CLASS I NAVIGATION STANDARD PRACTICES (TBD).**

#### **85. IFR CLASS I NAVIGATION.**

*A.* IFR Class I navigation is any Class I navigation operation conducted under instrument flight rules. The primary objectives of IFR Class I navigation are as follows:

- Navigating with sufficient precision to permit ATC to safely separate IFR aircraft
- Arriving at the intended destination with adequate fuel remaining to safely complete a landing
- Avoiding all obstacles along the actual route of flight
- Providing adequate protection for persons and property on the ground especially for those aircraft with inadequate "stay up" capability with an engine inoperative
- Meeting the requirements of Part B of the operations specifications

*B.* Since the safe separation of aircraft under IFR in controlled airspace is heavily dependent on the aircraft's navigational performance, an inspector must determine that the navigational equipment and the navigation procedures and techniques used by the operator assure that the operation will be conducted with the precision necessary to meet the objectives

listed in the previous subparagraph. Inspectors must consider the following when approving IFR Class I navigation:

- Situations when the means of navigation is other than VOR or VOR/DME will normally require a case-by-case evaluation
- In all cases, the means of navigation must enable navigation to the degree of accuracy required for the control of air traffic. See paragraph 11.
- IFR Class I navigation is only conducted within the operational service volume of standard ICAO NAVAID's. See paragraph 15A.

#### **87. TYPES OF IFR CLASS I NAVIGATION.**

There are two generic types of IFR Class I navigation. These types are navigation by direct reference to ICAO standard NAVAID's and navigation by use of area navigation systems.

*A. ICAO Standard NAVAID's.* The primary means of conducting IFR Class I navigation has historically been station-referenced to ICAO standard NAVAID's (VOR, VOR/DME, NDB). The route structure and the ATC separation standards in most countries are based on the use of these NAVAID's. When operating within the operational service volumes of these NAVAID's, these standard systems may be used to satisfy the objectives of IFR Class I navigation. Two subtypes of IFR Class I navigation can be conducted using ICAO standard NAVAID's. These subtypes are navigation on published IFR routes and navigation on unpublished point-to-point IFR routes.

##### *(1) Published IFR Routes*

*(a)* Within the United States and Canada, standard NAVAID's may be used to conduct Class I navigation when flying any published instrument flight route or procedure, provided these operations are conducted at or above the published minimum IFR altitudes. Examples of published IFR routes include victor airways, colored airways, jet/high level routes, SID's, STAR's, or instrument departures. This also includes those cases where the route is published with a "gap" in signal coverage.

*(b)* In many foreign countries and in oceanic/remote areas, the situation is more complex. The determination of whether Class I navigation is appropriate must be based on ICAO standards or their equivalence to U.S. standards. In general, most published VOR and VOR/DME routes (airways) are equivalent to U.S. standards and IFR Class I navigation can be conducted over these routes using standard VOR, VOR/DME equipment. In many areas outside the U.S. and Canada, some of the published routes are based on NDB's.

Any published NDB route must be thoroughly evaluated to determine whether the route involves Class I or Class II navigation, or both. See paragraph 15. If the entire portion of a route based on NDB is determined to be Class I navigation, NDB equipment is usually sufficient to conduct airways navigation over that route when flying at or above the specified minimum IFR altitude.

(2) *Unpublished IFR Routes.* IFR Class I navigation can be conducted over unpublished point-to-point routes (off-airways) provided all of the following conditions are met:

(a) Positive course guidance is available from standard ICAO NAVAID's.

(b) The routes are within the operational service volume of these NAVAID's.

(c) The operation is conducted at or above the IFR minimum altitude published or approved for that route by the ICAO contracting state having jurisdiction over that airspace.

(d) The required airborne, ground-based and/or space-based navigational facilities are available and operational so as to enable navigation to the degree of accuracy required for the control of air traffic.

*FYI: Point-to-Point IFR Class I navigation based on NDB's generally requires a case-by-case evaluation to assure the operation will be conducted in accordance with ICAO or U.S. standards. The fact that the route is approved by the ICAO contracting state does not automatically mean that the route meets these safety criteria.*

**B. Area Navigation Systems.** Sometimes, area navigation systems can be used to conduct IFR Class I navigation. Any area navigation system used for IFR flight must provide present position information as well as navigation guidance to maintain the assigned track and arrive at the designated waypoints. Area navigation systems may be station-referenced (VOR, DME, Loran C, Omega, Navstar GPS) or self-contained in the aircraft (INS, Doppler).

(1) *All Controlled Airspace.* IFR Class I navigation can be conducted with area navigation systems, provided these systems are approved for IFR flight within the proposed area of operation and meet the en route navigation performance criteria of AC 90-45A (or equivalent). Area navigation systems which are not station-referenced to ICAO standard NAVAID's (VOR or VOR/DME) must be evaluated on a case-by-case basis to assure that the system and the operator are capable of (within the proposed area of operation) navigating to the degree of accuracy required for control of air traffic. See paragraph 11.

(2) *U.S. Positive Control Area.* In U.S. positive control area (PCA), IFR Class I navigation can be conducted with area navigation systems which have not been shown to meet the navigational performance criteria of AC 90-45A (or equivalent). Historically, these operations have been conducted with INS and Omega systems which are less accurate than the performance standards in AC 90-45A. However, in the U.S. positive control area, additional safety is provided by ATC radar. This independent surveillance method and the procedures specified for this type of operation provides an equivalent level of safety and permits safe separation of aircraft. Operations in the U.S. positive area using area navigation systems that do not meet the navigational performance criteria of AC 90-45A are authorized by paragraph B35 of the standard operations specifications. These operations can be authorized provided the following conditions are met:

- The flightcrew is properly trained for the equipment and special procedures to be used.
- Each flight operation is authorized by the appropriate ATC facility.
- The entire portion of the intended route of flight using the area navigation system will be in the U.S. positive control area and under positive radar control.
- Contingency procedures are established so that the flight can immediately return to and use airways facilities at any point in the flight.
- The area navigation system is certified for IFR flight.
- The airborne navigational equipment (VOR, DME) required to navigate in positive control airspace is installed and operational.

## **89. IFR CLASS I NAVIGATION APPROVALS.**

General direction and guidance of air navigation approvals are in section 2. Specific direction and guidance for approving IFR Class I navigation is discussed in the following subparagraphs and paragraphs 91, 93, 95, and 97.

*A. Degree of Accuracy Required.* Inspectors must determine that the navigational equipment and the operational procedures/techniques used permit reliable IFR Class I navigation to the degree of accuracy required for the control of air traffic. The degree of accuracy required for any IFR Class I navigation operation must provide for the following criteria:

- Meets regulatory requirements for IFR airways navigation
- Meets the standard practices in this handbook
- Meets the requirements of Part B of the operations specifications
- Provides accepted, safe operating practices
- Permits the safe separation of aircraft
- Ensures obstacle avoidance along the route of flight
- Ensures adequate protection for persons and property on the ground
- Permits reliable navigation to the intended destination and any necessary alternative or diversionary airports

**B. Airworthiness of Navigational Equipment.** Inspectors must determine that required navigational equipment is airworthy for IFR flight and installed in accordance with approved data. The operator must provide written evidence of the airworthiness approval for the required equipment. Except for operations in the U.S. positive control area, the operator must also provide written evidence which shows that any area navigation system used for IFR Class I navigation meets the en route performance criteria in AC 90-45A (or equivalent) within the proposed area of operation. If the proposed area of operation includes areas of magnetic unreliability, the navigation equipment must be approved for IFR operations in that environment.

**C. Other Factors.** Inspectors must determine that the operator's manuals, training programs, MEL's, and company policies and practices adequately address the proposed IFR Class I navigation operation and the equipment to be used considering the following factors:

- Terrain characteristics

- The operator's experience with other aircraft and navigation systems in the area of proposed operation
- The operator's experience with the same aircraft and navigation in similar areas of operation
- The need to adequately protect persons or property on the ground
- Operations in special areas of operation including areas of magnetic unreliability
- Use of special means of navigation
- Use of special navigation techniques

**D. Approval.** IFR Class I navigation approvals are granted by issuance of or amendments to operations specifications. The areas of operation authorized must be specified in Part B, paragraph B50 of the operations specifications. See volume 3, chapter 1.

**NOTE:** The inspector will not, under any circumstances, issue operations specifications approving IFR Class I navigation operations until all requirements are met (including the PAI's approval of the operator's programs, if required) and the operator is currently capable of commencing safe operation.

**91. STANDARD ICAO NAVAID IFR CLASS I NAVIGATION STANDARD PRACTICES (TBD).**

**93. AREA NAVIGATION SYSTEMS IFR CLASS I NAVIGATION STANDARD PRACTICES (TBD).**

**95. PART 135 SINGLE PILOT IFR CLASS I NAVIGATION STANDARD PRACTICES (TBD).**

**97. PART 135 HELICOPTER IFR CLASS I NAVIGATION STANDARD PRACTICES (TBD).**

**98.-110. RESERVED.**

**[PAGES 4-38 THROUGH 4-42 RESERVED]**



**153. AREAS WITH SIGNIFICANT COMMUNICATIONS AND/OR AIR TRAFFIC CONTROL DIFFICULTIES.** The levels of sophistication in communication, navigation, and air traffic control capabilities in certain areas of operation outside North America and Europe vary widely. The following subparagraphs provide general information about these areas and paragraph 155 provides evaluation criteria that must be considered when approving operations in these areas.

A. *NAVAID's.* The ground-based facilities which are implemented to support air navigation in some of these areas are based on antiquated technology and frequently experience reliability problems. The national airspace system and the navigational performance requirements in many countries are based almost exclusively on NDB's. Also, many of the NAVAID's do not operate continuously. For example, NAV-AID's are shut down from dusk to dawn in certain countries.

B. *Communication.* The primary means of en route communication with ATC in many areas of operation is almost exclusively HF radio. Atmospheric noise created by extensive thunderstorm activity in tropical areas significantly increases the difficulty of using HF as a prime means of communication with ATC. In some of these areas it is necessary to use "CALLSEL" (the reverse of SELCAL) to establish contact with HF ground stations.

C. *ATC.* The level of air traffic service varies from radar based services (equivalent to domestic U.S. operations) to a total absence of any ATC. Flight information regions (FIR's) have been established in most areas of the world. Specific ICAO member states have been assigned the responsibility of providing air traffic services in these FIR's. Except for certain technically advanced countries, however, the degree of implementation of advanced ATC capabilities is very low. En route ATC radar is not available in most countries and air traffic services are based on position reports and airborne navigation performance capabilities. Various levels of air traffic services provided in these areas are as follows:

(1) *Controlled Airspace.* Within controlled airspace, ATC provides air traffic control service to prevent collisions between aircraft and to expedite and maintain an orderly flow of air traffic. This also includes air traffic advisory services and those alerting services related to weather and search and rescue.

(2) *Advisory Airspace.* Within advisory airspace, air traffic advisory service is available to provide separation, to the extent possible, between aircraft operating on IFR flight plans. It is important to under-

stand that this is an advisory service (similar to an FSS), not a control service (prevention of collision). In advisory airspace, flightcrews are provided information concerning the location of other aircraft. Prevention of collision is the responsibility of the pilot-in-command. The air traffic services available also include those alerting services related to search and rescue. In certain areas, special reporting procedures called "broadcasts in the blind" have been established to assist pilots in avoiding other aircraft. At designated intervals, each pilot broadcasts the aircraft's position, route, and flight level over a specified VHF frequency. Awareness of the proximity of other aircraft is obtained by maintaining a continuous listening watch on the specified frequency. This procedure is an "expected" practice in large portions of North-western Africa (including the Dakar FIR) and South America (including most Brazilian airspace). In many of these areas the "broadcast-in-the-blind" procedure is the only means of separating IFR aircraft, other than see-and-avoid.

(3) *No-Man's-Land.* Flight information regions have not been established for a few areas in the world. The largest of these areas is in the South Atlantic Ocean annotated as "No FIR." Flight information services also do not exist in the high altitude structure in other large areas (above the top of controlled airspace). Within no-man's-land, aircraft separation (prevention of collision) is entirely the responsibility of the pilot-in-command. Advice and information for the safe and efficient conduct of flights is not provided from an air traffic service unit. Alerting services related to search and rescue are not provided by an air traffic service unit.

D. *Metric Flight Levels.* The national airspace systems in most Eastern European and Asian Communist Bloc countries are based on the use of metric flight altitudes/levels. Operations within these areas require special procedures to translate the metric flight levels to usable flight levels. For example, a flight level of 10,000 meters represents FL 328 or a flight altitude of 1,000 meters represents an altitude of 3,280 feet.

**155. EVALUATION CRITERIA FOR AREAS WITH COMMUNICATIONS AND ATC DIFFICULTIES.** All proposals to conduct operations in the sovereign airspace of countries outside of North America, Western Europe, Japan, the Philippines, and the countries associated with the British Commonwealth, must be evaluated on a case-by-case basis.

A. *General Criteria.* The operator must show (considering factors unique to the proposed area of operation) that safe operations can be conducted within the area of operation and that the facilities and

services necessary to conduct the operation are available and serviceable during the period when their use is required. The operator must also show that the proposed operations is in full compliance with the requirements in Part B of the operations specifications which are applicable to that operation.

**B. Operations in Advisory Airspace.** The operator must show that its training programs and operating procedures permit safe operations in advisory airspace and assure compliance with the "expected" operating practices. The operator must also show that the operation is in compliance with paragraph A14 of the operations specifications.

**C. Operations in No-Man's Land.** Since air traffic control, air traffic advisory, flight information, and alerting services are not available from air traffic service units when operating within these areas, the operator must show that acceptable, alternative means are available to assure the following:

(1) The appropriate organization can be notified in a timely manner when search and rescue aid is needed.

(2) Changes in significant weather information can be provided to the flightcrew in a timely manner.

(3) Changes in the serviceability of the required navigation aids are available to the flightcrew and the operator's operational control system.

(4) Reliable information concerning other IFR aircraft operating within this area is available inflight. This includes "broadcast in the blind" procedures and other "expected" practices.

(5) The required navigation facilities necessary to safely conduct the operation are available and serviceable.

**D. Role of Navigation Specialists.** The uniqueness of operations in advisory airspace and in no-man's land usually requires assistance from persons with special navigational knowledge, skills, and expertise. Several navigation specialists are available in the FAA for these purposes. Inspectors are expected to request the assistance of these specialists when evaluating proposals to conduct operations outside controlled airspace.

**157. OPERATIONS IN SENSITIVE INTERNATIONAL AREAS.** Operations by U.S. operators within the sovereign airspace of certain countries have high international sensitivity. Operations within these countries are usually restricted by international agreements. These agreements frequently specify certain airports, selected routes and special procedures which must be used. Except when specifically approved by

AFS-200, inspectors shall not authorize operations within the areas or countries specified in this paragraph. When a request to operate in a sensitive area is received from an operator, inspectors shall forward the request through Regional Flight Standards Division to AFS-200. AFS-200 shall coordinate the request with AIA-100. If the request is approved, direction and guidance will be provided to the responsible inspector. The inspector shall approve the operation by adding the area of en route operation to paragraph B50 of the standard operations specifications. After approval, the responsible inspectors shall determine that the operator complies with the direction and guidance provided by AFS-200 and AIA-100. The following areas and/or countries are considered to be sensitive areas:

- Afghanistan
- Havana FIR/UIR
- Iran
- Iraq
- Lebanon
- Libya
- Somalia
- North Korea
- Vietnam
- Republics of former Yugoslavia

## **159. SOUTH ATLANTIC AND GULF OF MEXICO CONTROL AREAS (ATLANTIC AND GULF ROUTES).**

A. Atlantic routes (AR) and Gulf routes are special case routes in which Class II navigation can be conducted using VOR/DME and NDB supplemented by dead reckoning. These routes are located off-shore in the South Atlantic control area and Gulf of Mexico control areas as shown on en route charts. These areas are established by FAA Handbook 7400.2C, "Procedures for Handling Airspace Matters" to serve aircraft operations between U.S. territorial limits and oceanic control area/flight information region boundaries and/or domestic flights which operate in part over the high seas. These transition control areas permit the application of domestic procedures and separation minimums by air traffic control services.

B. Because independent radar surveillance is maintained while operating within these control areas, separation minimums are not as large as those in oceanic control areas. As long as radar surveillance is maintained, operations may be conducted on AR and Gulf Routes using VOR/DME and NDB supplemented

by dead reckoning. The special provision of radar surveillance provides the equivalent level of safety for aircraft separation even through dead reckoning may be required for relatively long periods of time (approximately 45-50 minutes). In addition, due to the proximity of these routes to shore-based facilities, the accuracy of dead reckoning can be enhanced by using position fixing information from shore-based VOR/DME NAVAID's. Dead reckoning techniques and procedures must be included in the FAA-approved training program for operation on these routes. It should include contingency training for diversions such as weather avoidance or emergencies. See paragraphs 121A and 123.

C. Approval of the use of ICAO standard NAVAID's supplemented by dead reckoning in the South Atlantic and Gulf of Mexico control areas is granted by entering these areas in paragraph B50 of the operations specifications.

**161. SPECIAL AREAS WHERE REDUNDANT LONG-RANGE NAVIGATION SYSTEMS ARE USUALLY NOT REQUIRED.** Certain special areas have been identified where long-range navigation can be conducted with a single long-range navigation system.

A. *Concept.* The provisions of the FAR's related to Class II navigation do not specifically require redundant or dual long-range navigation systems. The primary Class II navigation requirements are related to the level of navigational performance necessary for the control of air traffic. The objective of requirements for redundant navigational systems is to permit the flight to continue to navigate to the degree of accuracy necessary for the control of air traffic in the event a failure occurs in the navigational system being used.

(1) In certain situations, Class II navigation can be safely conducted using ICAO standard NAVAID's supplemented by dead reckoning. See section 4. Operations can also be safely conducted in much larger areas using a combination of redundant ICAO standard NAVAID's and a single, long-range navigation system. The basic concept for these operations considers the availability of ICAO standard NAVAID's, the lateral separation minimums applied by ATC (the navigational performance required), the length of the route or route segment, the complexity of the route structure, and the density of the air traffic.

(2) When the long-range navigation segment of the route flown is relatively short (several hours), the ATC lateral separation minimums are large (usually 90nm or more), and the upper air winds are relatively stable, single long-range navigation systems may be adequate. The primary concern related to the use of

single long-range navigation systems is preserving the ability to navigate to the degree of accuracy required for the control of air traffic following a failure in the long-range navigation system. Historically, the required navigational performance (following such failures) has been provided by the use of dead reckoning and ICAO standard NAVAID's. Since dead reckoning is much less accurate than using a long-range navigation system, the period of time that dead reckoning must be used is the most critical factor. Operational experience and analysis has shown that turbojet operations can be safely conducted (within special areas described in this paragraph) with an approved, single long-range navigation system and the redundant means of using ICAO standard NAVAID's.

B. *Special Provisions for the Western Atlantic Ocean, Caribbean Sea, and Gulf of Mexico.* The unique nature of the Western Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico permits operations with turbine-powered airplanes and certain off-shore helicopter operations to be safely conducted with a single approved long-range system. Approval of the use of a single long-range navigation system is granted by entering a note in the limitations, provisions, and reference paragraphs column of paragraph B50 of the operations specifications. The note should indicate that a single system (specify the system make) is authorized. The areas of operation where these operations may be authorized in paragraph B50 of the operations specifications are as follows:

- The Gulf of Mexico
- The Caribbean Sea
- The North Atlantic Ocean west of the western boundary of NAT/MNPS airspace and west of a line from 27 degrees N/60W to 10 degrees N/55W

C. *Special Provisions for Certain Routes in NAT/MNPS Airspace.* Special contingency routes have been established in limited portions of NAT/MNPS airspace where aircraft equipped to use standard ICAO NAVAID's can operate with a single long-range navigation system. These routes are specified in the International Flight Information Manual. Operations over these routes can be authorized provided the operator shows that the long-range navigation system/aircraft combination used and the operational procedures used meets NAT/MNPS requirements (AC 120-33). The approval is granted in accordance with paragraph B39(d) of the operations specifications and by adding that area of en route operation to paragraph B50 of the standard operations specifications.

D. *Other Special Areas.* Inspectors shall not authorize operations with single long-range navigation sys-

tems in any other areas of operation without the review and concurrence of AFS-200. When a request to operate with single long-range navigation systems in areas not described in this paragraph is received, inspectors shall request assistance from one of the agency's navigation specialists. If the responsible inspector and the navigation specialist determine that the proposed

operation can be safely conducted, a request for review and concurrence should be forwarded, through Regional Flight Standards Division, to AFS-200. AFS-200 will provide national direction and guidance for evaluating and approving or denying the proposed operation.

**162.-400. RESERVED.**

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## CHAPTER 1. DIRECTION, GUIDANCE, AND PROCEDURES

### SECTION 2. PHASES OF CERTIFICATION

**27. APPLICATION PHASE.** This paragraph contains general direction and guidance for completing the application forms required for the certificates covered in this volume. Some application forms contain detailed guidance and others do not. Inspectors and examiners should follow the directions on those forms that contain instructions.

*A. Completion of Application.* The applicant is responsible for filling in the information asked for in the appropriate blocks located on the application form above the applicant's signature block. The applicant's signature certifies that the information on the application is accurate and that the applicant meets the eligibility requirements for the certificate. Applicants are responsible for completing the application before the first phase of the testing process (see figures 5.1.2.1. and 5.1.2.2. for examples of the application forms).

*B. Eligibility.* The purpose of the application phase is to verify that the applicant is eligible and has met all of the prerequisites for the airman certificate or rating. Federal Aviation Regulations (FAR) eligibility requirements for specific certificates and ratings are discussed in applicable chapters of this volume and are listed on the appropriate job aids.

**28. VERIFICATION OF APPLICANT'S IDENTITY.** This paragraph contains information and guidance for inspectors, examiners, and paratechnical personnel for verifying the identity of applicants for airman certificates. The following information and procedures will reduce the possibility of an incorrect issuance of an airman certificate.

*A. Acceptable Identification Documentation (ID).* Acceptable ID includes, but is not limited to, the following:

- A valid driver's license
- A government ID card
- A passport
- Any ID documents that meet the requirements of the following subparagraphs

*B. Procedures For Proper Identification.* By observing the following procedures, inspectors and examiners shall ensure that applicants applying for airman certificates are properly identified:

(1) *Positive Identification.* Applicants for airman certificates must present positive documentation of identity at the time of application. The ID must include a photograph of the applicant and the applicant's signature. Applicants may use more than one ID to provide these items.

(2) *Street Address.* Inspectors, examiners, and paratechnical personnel shall not accept a post office box address on an application unless the applicant has no street address. For example, an applicant may reside on a rural route, a military base, a boat, or at some location that has no street address. In such cases, the applicant must make a written statement on a separate piece of paper that contains a physical description of the address, attest to the circumstances by signature, and attach the statement to the application.

(3) *FAA Form 8710-1, Airman Certificate and/or Rating Application.* This form contains a space in the "Attachments" block on the back of the form for the inspector to record the type, number, and expiration date of the ID submitted by the applicant. For example, if the applicant submits a valid driver's license, the inspector would enter "driver's license" on the "Form of ID" line, the license number on the "Number" line, and the expiration date on the "Expiration Date" line.

(4) *Flight Standards District Office (FSDO) Action.* Examiners shall refer any applicant to a FSDO if the applicant does not provide ID in accordance with subparagraph B. In these cases, FSDO's shall adhere to the guidelines that follow in subparagraph C.

*C. Alternative Methods of Identification.* An alternate means of ID may be used by individuals who have not yet established an acceptable form of ID. The procedure used must positively identify the applicant. In these cases, the procedure used must be

indicated by the inspector or paratechnical employee on the application or, if necessary, in a separate statement. Questions on acceptable procedures should be referred to the Civil Aviation Security Field Office (CASFO) or the Regional Civil Aviation Security Division (RCASD).

*D. Identification Irregularities and Deficiencies.* Inspectors, paratechnical personnel, and examiners should be on the alert for any indication of fraudulent or altered forms of ID. Under no circumstances should an inspector, paratechnical employee, or an examiner attempt to confiscate a suspected forged or counterfeit certificate or ID. Suspicious documentation should be reported immediately to the nearest CASFO or RCASD, and, if possible, a copy of the suspicious ID should be made for enforcement action purposes.

*E. Dealing with Suspected Cases of False Representation.* Inspectors, examiners, and paratechnicals should use proper interviewing techniques and exercise good judgment and common sense when dealing with individuals whom they suspect of falsely representing themselves. Behaviors to be aware of include the following: lack of specificity or directness in answering questions, skipping areas on applications, unusual hesitations, unusual nervousness, and inappropriate behavior. No attempt should be made to apprehend or physically restrain any individual. Instead, the inspector should observe and record the applicant's height, weight, and distinguishing characteristics. Suspicious incidents should be reported immediately to the nearest CASFO or RCASD.

**29. INSTRUCTIONS FOR COMPLETING APPLICATION FORMS.** Applicants should follow the instructions for completing FAA application forms carefully to preclude an excessive number of airman certification paperwork files from being returned by the Airmen Certification Branch (AVN-460) for correction. Application forms are designed for computer processing of information. Applicants should be aware that character limitations are imposed in some areas. Inspectors should ensure that applicants use FAA Form 8710-1 for the airline transport pilot (ATP) certificate (see figure 5.1.2.1.) and FAA Form 8400-3, Application for an Airman Certificate and/or Rating, for the flight engineer, flight navigator, and aircraft dispatcher certificates (see figure 5.1.2.2.). Inspectors should use the procedures and guidance that follow when reviewing an application form.

*A. Front Side of Application Form.* Inspectors should review the front side of the application form as follows:

(1) Ensure that the block designating the type of certificate for which application is being made is checked.

(2) When an applicant already holds the basic certificate and is applying for a rating to be added to the basic certificate, ensure that the "Additional Aircraft Rating" (FAA Form 8710-1) or the "Additional Rating" (FAA Form 8400-3) block is checked. This should only be checked when a rating is being added to an existing certificate.

(3) When the applicant already holds the certificate and is applying for the certificate to be reissued, ensure that the "Reissuance of \_\_\_\_\_ Certificate" (FAA Form 8710-1) or "Reissuance of Certificate" (FAA Form 8400-3) block is checked.

(4) On FAA Form 8400-3, ensure that both the make and model of the aircraft to be used are entered in the "Type of Aircraft to Be Used" block. This entry should be identical to the current designation listed in either figure 5.1.2.4. or 5.1.2.5. Since aircraft type designations are frequently changed, a current listing of the designations may be obtained through the Flight Standards Automation System (FSAS). This current information may be obtained by selecting the airworthiness/master minimum equipment list (MMEL) subsystem at the main FSAS menu. When the broadcast message page appears, press "enter" or "go" until the MMEL main menu appears. At the MMEL menu, select "type rating."

(5) On FAA Form 8400-3, ensure that the time accrued in the make and model of aircraft to be used in the flight test is entered in the "Time in This Aircraft" block. Simulator time must not be entered. If the flight test will be conducted in two segments (simulator and aircraft), the block should be left blank until the applicant takes the aircraft portion of the test.

*B. "Application Information" (8710-1) or "Applicant Identification" (8400-3) Block.* Inspectors should ensure that applicants complete this block and the appropriate subsequent blocks as follows:

(1) "Name." Enter legal name but not more than one middle name. Do not change the name on subsequent applications unless it is done in accordance with FAR 61.25. The last name is limited to 17 characters. The first and middle names should not exceed 26 characters, including spaces between names. Hyphenated names should be shortened so that the number of characters allowed is not exceeded. If the applicant does not have a middle name, enter "NMI." If the applicant has only a middle initial, add the note, "initial only." The name on the application should be the same as the name on the superseded certificate,

unless the applicant's name has been changed in accordance with FAR 61.25.

(2) *"Social Security No." or "SSN."* The social security number (SSN) is optional; however, this block should not be left blank. If the SSN is not available for FAA use, enter "Do Not Use." If the applicant does not have an SSN, enter "None." In either case, AVN-460 will issue a nine-digit pilot certificate number.

(3) *"Date of Birth."* Enter six numeric-character digits in this space. For example, enter 07-09-55 instead of July 9, 1955. Compare the date of birth on the application form with the date of birth on the applicant's medical certificate to verify that they are the same and accurate.

(4) *"Place of Birth."* If the applicant was born in the U.S., enter the city and state. If the city is unknown, enter the county and state. If the applicant was born outside of the U.S. or its territories, enter the city and country.

(5) *"Permanent Mailing Address" or "Address."* Enter the address to which the permanent certificate is to be sent. Check for accuracy. Make sure numbers are not transposed. The number and street or the P.O. box should not exceed 17 characters, including spaces.

(6) *"Nationality."* Enter the applicant's country of citizenship. Citizens of the United States shall enter "USA." All others shall spell out the full name of the country.

(7) *"Height."* Enter height in inches. For example, 5'9" should be entered as 69 inches. Enter whole inches only. Do not enter fractions. Foreign applicants must convert to U.S. measurements (for height, 1 inch = 2.54 cm; 1 cm = .3937 inches).

(8) *"Weight."* Enter weight in pounds. Enter whole pounds only. Do not enter fractions. Foreign applicants must convert to U.S. measurements (for weight, 1 lb = .4536 kg; 1 kg = 2.20 lb).

(9) *"Hair."* Spell out the color of hair or use an abbreviation that cannot be confused with another color. If bald, enter "bald." If wearing a toupee, enter color of hair under the wig or toupee.

(10) *"Eyes."* Enter the true color of the eyes, regardless of whether tinted contact lenses are worn. Spell out the color or use an abbreviation that cannot be confused with another color.

(11) *"Sex."* Enter male or female ("M" or "F" may be used).

(12) *Block "M" on FAA Form 8710-1.* Ensure that the applicant checks either "yes" or "no."

(13) *"Grade Pilot Certificate" (on FAA Form 8710-1).* Enter the grade of pilot certificate (such as student, recreational, private, commercial, or ATP) currently or previously held, not the grade for which application is being made. Flight instructor certificate information should not be entered into this block.

(14) *"Certificate Number" (FAA Form 8710-1).* If the applicant already holds or has previously held a pilot certificate, enter that certificate number.

*C. Drug-Related Convictions.* Inspectors should use the following guidance when reviewing an application for drug-related information concerning the applicant.

(1) *Background.* On November 29, 1990, a final rule affecting pilots convicted of alcohol- or drug-related motor vehicle offenses became effective. An airman's conviction of a motor vehicle offense involving either alcohol or drugs is to be evaluated by the Aeromedical Certification Division, AAM-300. An alcohol- or drug-related conviction is not necessarily grounds for disqualification. A medical judgment relative to the condition involved must be made by the Federal Air Surgeon, the Manager of the Aeromedical Certification Division, or a regional flight surgeon. Under this new rule, an airman certificate or rating may be denied to an individual who has had two or more alcohol- or drug-related motor vehicle convictions or state motor vehicle actions within a 3-year period. The information requested on the old FAA Form 8710-1 exceeded the requirements currently outlined in the FAR. As a result of this problem, the language on the form was revised to comply with the new rule. When the Federal Air Surgeon reissues a medical certificate to a drug- or alcohol-convicted airman, the airman may then exercise the privileges of the new airman certificate. The inspector or examiner should inspect the applicant's current medical certificate to ensure that it is valid.

(2) *Block "U" on FAA Form 8710-1.* Block U contains the statement, "Have you been convicted for violation of Federal or State statutes relating to narcotic drugs, marijuana, or depressant or stimulant drugs or substances?" The applicant must check either "No" or "Yes."

(a) *"No" Checked.* If the applicant checked "No," the inspector or examiner shall conduct the practical test and, if appropriate, issue the airman certificate. If it is determined later that the applicant should have checked "Yes," the inspector should conduct an investigation to determine compliance (see FAA Order 2150.3, Compliance and Enforcement, regarding falsification of application).

(b) *"Yes" Checked.* If the applicant checked "Yes," the applicant must indicate the date of final conviction. In this case, the inspector or examiner may not continue with the examination. The examiner shall notify the appropriate FSDO of the decision to terminate the examination and forward the application to the FSDO. The FSDO should contact regional counsel to determine what action to take.

D. *"Certificates Held By Applicant"* (on FAA Form 8400-3). Check the appropriate certificates currently held by the applicant.

E. *Section II, "Certificate or Rating Applied For on Basis of"* (on FAA Form 8710-1). Check the appropriate block: A, B, C, D, or E.

(1) *Block A., 1., "Aircraft to be Used."* Enter the make and model of the aircraft to be used. This should be identical to the current designation listed in either figure 5.1.2.4. or figure 5.1.2.5. AVN-460 double-checks this with the attached Temporary Airman Certificate (FAA Form 8060-4) to ensure that the proper aircraft type rating is issued.

(2) *Block A., 2a., "Total time in this aircraft."* Enter the time accrued in the make and model of aircraft to be used in the flight test, including flight training time. Do not enter simulator time. If the flight test will be conducted in two segments (simulator and aircraft), leave the space blank until the applicant takes the aircraft portion of the test.

(3) *Block A., 2b., "Pilot in command."* Enter total pilot-in-command (PIC) time in the aircraft to be used. For the ATP type rating, this block may be, and normally is, zero.

(4) *Block B., "Military Competence Obtained in."* Enter the applicant's branch of service, date rated as a military pilot, current or last grade and service number, and the military aircraft flown as PIC for 10 hours or more in the last 12 months.

(5) *Block C., "Graduate of Approved Course."* Complete this block as follows:

(a) *Block 1., "Name and Location of Training Agency or Training Center."* Enter as shown on the graduation certificate. Be sure the location is entered.

(b) *Block 1a, "Certification Number."* Enter as shown on the graduation certificate.

(c) *Block 2., "Curriculum From Which Graduated."* Enter as shown on the graduation certificate.

(d) *Block 3., "Date."* Enter the date of graduation from the indicated course. An approved course graduate must also complete "Completion of Required Test" in Block "A."

(6) *Block D, "Holder of Foreign License Issued By."* See volume 5, chapter 9, section 8 of this handbook, U.S. Airman Certificates and Special Purpose Airman Certificates Issued on the Basis of a Foreign Airman Certificate.

(7) *Block E, "Completion of Air Carrier's Approved Training Program."* Enter the name of the air carrier and the date that the last segment of the operator's training program required for certification was completed. Then enter the appropriate category of training (such as initial, upgrade, or transition).

**NOTE: The intermediate stages of the training will be reflected in the applicant's training record.**

F. *Section III, "Record of Pilot time"* (FAA Form 8710-1). Ensure that applicants have entered at least the minimum flight experience required by the appropriate regulation for the certificate or rating sought. If flight experience has no bearing on the certificate action, such as exchange of certificate, it is not necessary to include flight experience on the application. Applicants should, however, be encouraged to enter flight experience for historical purposes any time an applicant completes this form. The "Instruction Received" blocks of the "Airplanes," "Rotorcraft," "Gliders," and "Lighter than Air" lines refer to instruction in an aircraft in flight. The time entered in the "Training Device/Simulator" column is for instruction in simulators and training devices only.

G. *Section IV, "Have you failed a test for this certificate or rating? Within the past 30 days?"* Check appropriate blocks. Inspectors and examiners must ensure that applicants who check "yes" meet the requirements of FAR 61.49 (pilots), FAR 63.41 (flight engineers), FAR 63.59 (flight navigators), or FAR 65.19 (aircraft dispatchers).

**NOTE: The Air Transport Association of America (ATA) holds exemption number 3474, which allows flight crewmembers employed by an ATA member air carrier (or similarly situated operator) to apply for retesting after the second failure, without waiting for 30 days, when the flight crewmembers have been retrained by the operator.**

H. *Section V, "Applicant's Certification."* Enter the date that the application was signed. The applicant must certify to the accuracy and truth of the information on the application by signing in this space.

I. *Reverse Side of FAA Form 8710-1.* The reverse side of this form is used for recommendations, reports, records and attachment notes, when required.

(1) *"Instructor's Recommendation" Block.* This block does not need to be signed for an ATP certificate

or for a type rating (see FAR 61.39(a)(5)(iii)); however, when an applicant has received instruction in an approved Part 121 or Part 135 training program, an instructor, supervisor, or check airman must certify (in the applicant's training record) that the applicant's knowledge and proficiency is satisfactory in accordance with FAR 121.401(c) and FAR 135.323(c) before the applicant may take the test.

(2) *"Air Agency's Recommendation" Block.* This block is only used by Part 141 pilot schools and their examining authority.

(3) *"Designated Examiner's Report" Block.* This block is used by aircrew program designees (APD), air carrier airman examiners and general aviation pilot examiners. The APD or examiner who issues the Temporary Airman Certificate or Notice of Disapproval of Application (FAA Form 8060-5) is required to sign this block, and must check the "I have personally tested and/or verified this applicant . . ." block and the "Approved" or "Disapproved" block. The APD or examiner must then complete the information requested in the boxes titled, "Location of Test"; "Certificate or Rating for Which Tested"; "Type(s) of Aircraft Used" (with level of simulator used); and "Registration No.(s)" of aircraft, if used. The remaining blocks need to be completed with date, examiner's signature, certificate number, designation number and expiration date. The "Duration of Test" block should contain an indication of the approximate duration of the oral, simulator, and flight check. The level of simulator used must be noted in the "Type(s) of Aircraft Used" block of the examiner's report.

(4) *"Evaluator's Record For Airline Transport Certificate/Rating Only" Block.* This block must be used by inspectors, designated examiners, and APD's who administer multiple-phase testing for an ATP certificate or a type rating added to an ATP certificate. The inspector, designated examiner, or APD who administers each phase of the test must sign on the appropriate line and enter the date. Inspectors shall enter their organizational identifier. Designated examiners and APD's shall enter their designee number.

J. *"Inspector's Report."* This section is to be completed only by FAA aviation safety inspectors (ASI).

(1) If the inspector has personally tested the applicant and is issuing or denying a certificate, the inspector shall check the appropriate box: "Approved—Temporary Certificate Issued" or "Disapproved—Disapproval Notice Issued." Inspectors shall complete the information requested in the boxes titled, "Location of Test"; "Certificate or Rating for Which Tested"; "Type(s) of Aircraft Used" (with

level of simulator used); and "Registration No.(s)" of aircraft, if used. If the inspector did not issue the Temporary Airman Certificate or the Notice of Disapproval of Application, all of these boxes must be left blank. The inspector completes this section by dating, signing, and identifying the inspector's permanently assigned FSDO.

(2) Inspectors reviewing applications completed by examiners shall check the block titled "Examiner's Recommendation" and either "ACCEPTED" or "REJECTED." If the inspector rejects the examiner's recommendation, the inspector must attach a brief statement containing both an explanation and any intended further actions (such as a re-examination). The inspector shall then date, sign, and enter the FSDO designation.

(3) Inspectors renewing a Part 121 or Part 135 flight crewmember's flight instructor rating must check the "Certificate or Rating Based on" block, the "Certificate Issued" block, the "Instructor" block, the "Flight" block, the "Renewal" block, the "Approved" block, and the "Instructor Renewal Based on 'Activity' or 'Acquaintance'" block. The inspector shall complete this section of the form by dating, signing, and identifying the inspector's permanently assigned FSDO (such as ASO-FSDO-19); regional office (such as ASO-260); or headquarters office (such as AFS-550); into the "FAA District Office" block.

K. *"Attachments."* This section of the form is used for recording the method of documenting the applicant's identity and the documents attached to the application.

**31. ORAL TEST PHASE.** Oral testing is conducted to determine whether the applicant has acquired adequate practical knowledge to safely and competently exercise the privileges of the certificate.

A. *Location.* The preferred locations for conducting oral tests for airman certificates are in ground training devices, flight training devices, or flight simulators. The interactive logic available in these devices provides an effective method of testing the applicant's knowledge of normal, abnormal, and emergency procedures.

B. *Question Phrasing.* Questions should be phrased in simple, focused, and specific terms. Applicants shall be encouraged to answer in the same manner. An example of a simple, focused, and specific question is, "What is the maximum allowable EGT limit during a normal engine start?" An example of an abstract, ambiguous, and confusing question is, "Tell me everything you know about starting an engine." Inspectors and examiners shall encourage applicants

to ask for clarification, before answering, when they are unsure of the meaning of a question.

*C. Length and Scope.* The scope of oral tests is defined by regulation. The items that should be evaluated on each type of oral test are specified in the applicable FAR, Practical Test Standards (PTS) and job aids. Inspectors and examiners shall choose their questions from the entire range of appropriate topics rather than concentrate on only a few topics. Questions should be related to the specific characteristics of the aircraft involved. The length of the oral test depends on the complexity of the aircraft involved. For simpler aircraft with uncomplicated systems, the oral test can normally be accomplished in approximately 1 hour. For large, complex aircraft, the oral test can normally be accomplished in approximately 2 hours.

*D. Standards of Performance.* FAR 121.403(b)(3) and FAR 135.327(b)(3) require that operators publish "detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the in-flight portions of flight training and flight checks." Operators must use Airline Transport Pilot and Type Rating Practical Test Standard (FAA-S-8081-5), any applicable Flight Standardization Board (FSB) reports, and the manufacturer's recommendations. Inspectors and examiners shall use the standards approved by the POI for the operator when conducting oral tests.

(1) *Specific Requirements.* Applicants are expected to possess a broad understanding of the aircraft and its systems rather than a highly detailed knowledge of component design and construction. They should be able to demonstrate an understanding of the essential features of system design and how various systems interrelate. Applicants must be able to demonstrate such knowledge by interpreting cockpit indications and describing the condition of aircraft systems from these indications. Applicants are not expected to have memorized specific facts that are immediately available in reference manuals and checklists that are required to be in the cockpit. Applicants must, however, be able to state memory items on emergency checklists (in the correct sequence) and flight manual limitations from memory.

(a) When a limitation is presented in terms of a gauge marking, the applicant shall be able to state the operational significance of the marking but does not need to have memorized the appropriate value the marking represents. When a limitation is not clearly presented by such a marking, the applicant

must be able to state the appropriate value from memory.

(b) To illustrate the standards described, the following example is provided. Assume the aircraft involved requires a specific fuel burn sequence. The applicant should be able to describe in general terms the fuel burn sequence and to detect correct and incorrect conditions from gauge indications. The applicant should be aware of any checklist or procedure that corrects an improper condition and where that checklist or procedure is located. The applicant is not expected to memorize the sequence of steps necessary to correct the condition. On the other hand, the applicant should be able to state from memory the flight manual limitation concerning allowable fuel imbalance between pairs of tanks.

(2) *Acceptable Standard.* An applicant may not be able to give entirely correct answers to some of the questions in an oral test; however, that applicant may still meet an acceptable standard. Inspectors and examiners must base their decisions on whether applicants pass or fail on the soundness of the applicants' overall command of basic principles. Inspectors and examiners shall avoid commenting on an applicant's performance until after the oral test is complete.

*E. Debriefing.* Immediately after the oral test, the applicant will be debriefed on performance and informed of the results of the test.

**33. FLIGHT TEST PHASE.** FAR 121.403(b)(3) and FAR 135.327(b)(3) require that operators publish "detailed descriptions or pictorial displays of the approved normal, abnormal, and emergency maneuvers, procedures and functions that will be performed during each flight training phase or flight check, indicating those maneuvers, procedures and functions that are to be performed during the in-flight portions of flight training and flight checks." Operators must use Airline Transport Pilot and Type Rating Practical Test Standard (FAA-S-8081-5), any applicable FSB reports, and the manufacturer's recommendations. Inspectors and examiners shall use the standards approved by the POI for the operator when conducting flight tests.

*A. Purpose.* The purpose of the flight test is to evaluate the applicant's ability to operate safely and effectively in a real-time environment. Inspectors and examiners shall determine whether applicants have achieved an acceptable level of physical manipulation skills, positional orientation abilities, flight management skills, and crew coordination skills. Flight tests can normally be conducted in 2 1/2 hours.



### *B. Separation of Oral Phase from Flight Test Phase.*

For all flightcrew airman certificates, the oral and flight test phases should not be conducted simultaneously. The purpose of the oral test phase is to examine an applicant's depth of knowledge while the purpose of the flight test phase is to observe and evaluate an applicant's skills. An inspector's or examiner's presence in the cockpit can affect the normal interaction of the flightcrew. Inspectors and examiners should endeavor to minimize this effect by maintaining a passive role and by not becoming involved in normal crew operation. Questions that require explanations and probe the applicant's depth of knowledge are appropriate during the oral test phase but not during the flight test phase.

*C. Normal, Abnormal, and Emergency Procedure Test Events.* The events that must be evaluated on each flight test are specified by regulation or determined by the Administrator. The events have been listed on appropriate job aids for the convenience of inspectors and examiners. The regulations require inspectors to evaluate normal, abnormal, and emergency procedures that appear in the operator's manual but are not specifically identified by regulation. Inspectors and examiners shall evaluate on each flight test as many of these events that the inspector or examiner "finds are necessary to determine that the person being checked has an adequate knowledge of, and ability to perform, such procedures . . ." (see FAR 61, Appendix A, VI and VII). Examples of these events include flight instrument and display failures, operations in ice and rain, emergency descent, and emergency ground evacuation. Inspectors shall vary these events on subsequent flight tests so that the effectiveness of the operator's manual and training program can be evaluated.

*D. Flight Management and Crew Coordination Skills.* Inspectors and examiners shall observe and evaluate crew coordination and flight management skills. The applicant must demonstrate good judgment, continual spatial and situational awareness, and cockpit management throughout the flight test.

*E. Briefings.* Before the flight simulator segment and aircraft segment of a flight test, inspectors and examiners shall brief applicants on what will be expected of them during the flight test. Before the flight test, inspectors and examiners shall determine by agreement with the applicant whether or not to continue the flight test after a failed event. When other crewmembers are involved, they shall be briefed on their roles. Suggested briefing outlines are included on the job aids. Inspectors and examiners shall avoid commenting on the applicant's performance during the flight test.

*F. Debriefings.* After the test, the applicant shall be informed of the results and debriefed in a timely manner. If the applicant is unsuccessful, the inspector or examiner shall ensure that the applicant clearly understands specifically what was unsatisfactory about each event that was failed. Inspectors and examiners should use judgment and discretion when inviting other crewmembers to attend these debriefings. It is important that company instructors or check airmen receive direct feedback on their students' performances. Instructors or check airmen who participate in flight tests (as copilots or safety pilots) should usually be invited to attend these debriefings. An inspector or examiner may choose to limit attendance at the debriefing to only the applicant. If an instructor or check airman who participated in the flight test is not at the debriefing, the inspector or examiner should debrief that person at a later time.

*G. Termination of Flight Tests Before Completion.* When the inspector or examiner determines that an applicant's performance is unsatisfactory, the inspector or examiner may then either terminate the flight test immediately or, with the consent of the applicant, continue with the flight test until the remaining events are completed. Usually, graduates of approved training programs are well prepared. Although a single event is failed, retraining and retesting in all events of the flight test is normally unnecessary. In such cases, it is usually better for the inspector or examiner to continue with the flight test to complete the other events. When the inspector or examiner determines that the entire flight test must be repeated, the flight test should not be continued but should be immediately terminated. Whether the flight test is continued or not after a failure, the inspector or examiner must issue the applicant an FAA Form 8060-5, Notice of Disapproval of Application. Safety pilots shall immediately terminate any maneuver or an entire flight test whenever flight safety is in question.

*H. Inconclusive Events.* When the inspector or examiner is unable to determine whether the objectives of an event have been met, the inspector or examiner may require the applicant to repeat the event or a portion of the event. This provision has been made in the interest of fairness and does not mean that instruction or practice is permitted during the certification process. Inspectors and examiners shall not repeat completed, failed maneuvers.

**NOTE: If the check must be terminated (for mechanical or other reasons) and there are events which still need to be repeated, a Letter of Discontinuance, valid for 60 days, shall be issued listing the specific areas of operation that have been successfully completed (see figure 5.1.2.7.).**

**35. DOCUMENTATION PHASE.** There are documentation requirements that must be completed after each phase of the testing process. Documentation requirements are specified in the chapter applicable to each certificate and are listed on appropriate job aids. After completing all phases of the testing process, the inspector or examiner shall complete a Program Tracking and Reporting Subsystem (PTRS) data sheet. (Paragraph 41 contains instructions for completing the PTRS data sheet.) The inspector or examiner shall collect the required documents and attach them to the completed application form. Inspectors shall forward the certification paperwork through their supervisors to AVN-460. Examiners shall forward the appropriate certification paperwork to the appropriate Certificate-Holding District Office (CHDO).

**37. FAA FORM 8060-4, TEMPORARY AIRMAN CERTIFICATE.** When the applicant has satisfactorily met all requirements for certification, including the age requirements, the inspector or examiner shall prepare in duplicate a Temporary Airman Certificate, give a copy to the applicant and mail the original to AVN-400. Most of the information that must be entered on this form is self explanatory. There will frequently be differences, however, in the information supplied on the application and in that shown on the superseded certificate. Inspectors and examiners shall ensure that the information entered on the temporary certificate is in agreement with the application form or that the differences are appropriately resolved. The following instructions apply to certain information fields as indicated. See figure 5.1.2.3. for an example of the Temporary Airman Certificate.

**A. Certificate No., Space III.** The FAA certificate number of the superseded certificate must be entered in this space.

**B. Name, Space IV.** Enter the applicant's legal name in the normal sequence of first, middle, and last name. The name should appear exactly as it is entered on the application. The applicant's name should be the same as that on the application, temporary certificate, and the superseded certificate unless it has been changed in accordance with FAR 61.25.

**C. Address, Space V.** Enter the permanent mailing address.

**D. Date of Birth.** Enter six digits in this space. Use numeric characters, such as 07-09-55 instead of July 9, 1955. Check to see that date of birth is the same as it is on the medical certificate and application. This has been a problem area, which has resulted in having AVN-460 return the certification paperwork for correction.

**E. Height.** Enter the applicant's height in whole inches. Do not use fractions. For example, 5'9" should be entered as 69.

**F. Weight.** Enter the applicant's weight in whole pounds.

**G. Hair.** Spell out the hair color or use an abbreviation that cannot be confused with another color. If the applicant is bald, enter "bald." If the applicant wears a wig or toupee, enter color of hair under the wig or toupee. Indicate bald, if applicable.

**H. Eyes.** Spell out the color of the eyes, or use an abbreviation that cannot be confused with another color.

**I. Sex.** Enter "M" for male or "F" for female.

**J. Nationality, Space VI.** Enter the applicant's country of citizenship.

**K. Certificate Name, Space IX.** Enter the correct name of the appropriate certificate as follows:

- Airline Transport Pilot
- Flight Engineer
- Flight Navigator
- Aircraft Dispatcher

**L. Ratings and Limitations, Space XII.** Inspectors or examiners shall ensure that all ratings and limitations are correctly entered. Check these entries against the superseded certificate.

**(1) Pilot Category Ratings.** The category ratings that may be placed on a pilot certificate are as follows:

- Airplane
- Rotorcraft

**(2) Pilot Certificate - Airplane Class Ratings.** The airplane class ratings that may be placed on a pilot certificate are as follows:

- Single-Engine Land
- Multiengine Land
- Single-Engine Sea
- Multiengine Sea

**(3) Pilot Certificate - Rotorcraft Class Ratings.** The rotorcraft class ratings that may be placed on a pilot certificate are as follows:

- Helicopter
- Gyroplane (not applicable to ATP)

(4) *Flight Engineer Certificate - Class Ratings.* The class ratings that may be placed on a flight engineer certificate are as follows:

- Reciprocating
- Turbopropeller
- Turbojet

(5) *Aircraft Type Ratings.* Aircraft type ratings are placed on pilot certificates after class ratings. See figure 5.1.2.4. for authorized airplane type ratings and figure 5.1.2.5. for authorized rotorcraft type ratings. Authorized type ratings may also be obtained from the FSAS MMEL subsystem.

(6) *Private and Commercial Privileges.* When an ATP certificate is issued, the applicant is entitled to the private and commercial level privileges previously held. Inspectors and examiners shall enter the following as appropriate:

- Commercial Privileges: (class and type ratings, as applicable)
- Private Privileges: (class and type ratings, as applicable)

*M. Limitations, Space XIII.* Any required limitations must be entered in this space.

*N. Signatures, Spaces VII and X.* The inspector or examiner and the applicant shall sign the certificate in the appropriate spaces.

**39. FAA FORM 8060-5, NOTICE OF DISAPPROVAL OF APPLICATION.** When an applicant's performance on any phase of the test process is unsatisfactory, inspectors and examiners shall complete FAA Form 8060-5, Notice of Disapproval of Application in duplicate. See figure 5.1.2.3. for an example. Inspectors and examiners shall indicate those events that the applicant failed and that require retesting, or indicate that the entire test must be repeated. If the entire flight test will not be repeated, any events that were not accomplished during the failed flight test must also be indicated. The next inspector or examiner will have only the Notice of Disapproval to determine which events were unsatisfactory or which events have yet to be accomplished. The Notice of Disapproval must be annotated with the date of the oral and simulator tests. This is necessary to maintain a record for computing the 30- and 60-day time limits (see paragraph 17E of this volume). The duplicate copy of the Notice of Disapproval shall be given to the applicant. The original copy shall be attached to the completed application form and forwarded to the appropriate FSDO.

**41. COMPLETION OF FAA FORM 8000-36, PTRS DATA SHEET.** Inspectors and examiners who conduct airman certification shall complete an FAA Form 8000-36, Program Tracking and Reporting Subsystem Data Sheet, for each activity conducted (see figure 5.1.2.6.). Office managers may have the data sheets overprinted and supplied to examiners. This may be done by simply filling in the applicable fields and reproducing the form on a copy machine. Once the data from the sheet has been entered into the computer, the FSDO may either retain or discard the sheet as desired. The following italicized titles apply to the data fields on the sheet:

A. *"SECTION I. Inspector Name Code."* A valid inspector name code must be entered on each sheet before the data is entered into the computer. Inspectors conducting certification shall enter their assigned code. Examiners should leave this space blank.

B. *"Record ID."* The computer generates the entry for this field. Inspectors and examiners shall leave this field blank.

C. *"Activity Number."* Inspectors shall enter the applicable code, from the 1500 series, in this field. The applicable codes are listed on the job aids. For example, an inspector who has conducted an oral examination for an original issuance of an ATP certificate shall enter code 1510. Examiners shall enter code 1563 in this field for all activities. Data sheets supplied to examiners should be overprinted with this number. See related instructions for examiners concerning the field labeled, "Tracking."

D. *"FAR."* Inspectors and examiners shall enter in this field the major section of the FAR Part under which certification is being conducted, such as, "61" for pilots, "63" for flight engineers, and "65" for flight dispatchers. This field should be overprinted for sheets supplied to examiners.

E. *"NPG."* Inspectors and examiners shall leave this field blank unless specific directions for its use are provided.

F. *"Status: (COP)."* Inspectors and examiners shall enter "C" in this field. This field should be overprinted for forms supplied to examiners.

G. *"Callup Date."* Enter when appropriate (usually left blank).

H. *"Start Date."* Enter when appropriate (usually left blank).

I. *"Results: (ACEFISTX)."* A "C" shall be entered in this field if the test phase has been completed, whether the applicant has succeeded or failed. If the test phase has been terminated with a failure, the test

phase is complete and a "C" shall be entered in this field. When a test phase is terminated before completion and the applicant's performance is satisfactory up to the point of termination, a "T" shall be entered in the "Results" field. In this case, a short explanation should be entered in the "Comment Text" field in Section IV, such as "Flight test terminated due to malfunction of simulator visual system."

J. "Pass/Fail (P/F)." An entry must always be made in this field. An "F" shall be entered in this field when the test phase is unsatisfactory. A "P" shall be entered in all other cases, whether or not the phase is complete.

K. "Completion Date." The date of the event must always be entered in this field.

L. "Designator." The airline or operator code must be entered in this field. This field should be preprinted when appropriate.

M. "Airman Certf #." Inspectors shall enter either the applicant's airman certificate number or "999999999" if the applicant does not yet have a certificate. Examiners shall enter their own airman certificate number (not the applicant's certificate number).

N. "Airman Name/Other." Inspectors shall enter the applicant's name. Designated examiners shall enter their own name (not the applicant's name) in this field. See the instructions for "SECTION II - PERSONNEL" for related information and guidance.

O. "Aircraft Reg #: N." Enter the aircraft N-number, if applicable. Leave this field blank for simulator, oral, and other test phases.

P. "Make-Model-Series." Make an appropriate entry for all test phases. This field should be preprinted when appropriate.

Q. "Loc/Departure Point." Enter the three-character or four-character location identifier for all activities. If the location has no identifier, use the nearest appropriate one. This field should be preprinted when appropriate.

R. "Arrival Point." This field is optional. It should be used when applicable, but may be left blank.

S. "Flight #." This field is optional. It should be used when applicable, but may be left blank.

T. "Investigation #." This field should not be used. A slash or N/A should be placed in this field on overprinted forms.

U. "Tracking." Examiners shall enter the appropriate activity code from the job aid and FAR in this

field. For example, an examiner who has conducted an oral examination for an original issuance of an ATP certificate shall enter code 1510. An examiner who has conducted a practical test for a dispatcher certificate shall enter code 1524.

V. "Miscellaneous." When an examiner conducts a phase of a test and is observed doing so by an FAA inspector, "OBSVD" shall be entered in this field. The inspector's name should be entered in the "Comment Text" field. On other occasions, the use of this field is optional.

W. *All Other Fields in Section I.* The remaining fields in this section are provided for regional and/or district office use, special programs, and future requirements. In the absence of any guidance, these fields should be left blank.

#### X. "SECTION II - PERSONNEL (unlimited)."

(1) When an examiner completes the data sheet, the applicant's name shall be entered under "Personnel Name." "APPL" shall be entered under "Position." The applicant's certificate number (ATP, FE, or FD) shall be entered under "Remarks." In the event of an original issuance of a certificate, enter "pending" under certificate number.

(2) When a recommendation is required for a test phase, the name of the recommending instructor shall be entered under "Personnel Name." "RI" shall be entered under "Position." The instructor's certificate number (ATP, FE, or FD) shall be entered under "Remarks." When a recommendation is not required for the applicant, the name of the instructor or supervisor who has certified that the applicant is competent shall be entered in the same manner.

Y. "SECTION III - EQUIPMENT." Entries in the fields in this section are optional.

Z. "SECTION IV - COMMENT SECTION (unlimited)." Both inspectors and examiners are encouraged to make entries in this field. A topic such as the reasons and circumstances surrounding the failure of an applicant should be commented upon; however, comments should not be limited to this type of topic. A blank line should be left between each separate comment. Inspectors should code their comments. To assist in the standardization of coding, examiners should leave the coding blank. The reviewing inspector should code the examiner's remarks.

**43. DISTRICT OFFICE RESPONSIBILITIES.** District offices shall make the PTRS data entries for both inspectors and examiners and either retain or discard the data sheet, as appropriate. District offices

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shall review completed certification paperwork for accuracy and completeness and forward the certification paperwork to AVN-460 at the following address:

Airmen Certification Branch, AVN-460  
P.O. Box 25082  
Oklahoma City, Oklahoma 73125

**44.-50. RESERVED.**

**FIGURE 5.1.2.1.**  
**FAA FORM 8710-1, AIRMAN CERTIFICATE AND/OR RATING APPLICATION**  
**(FRONT)**

TYPE OR PRINT ALL ENTRIES IN INK

Form Approved OMB No: 2120-0021

<b>Airman Certificate and/or Rating Application</b>																																																																																																													
U.S. Department of Transportation Federal Aviation Administration																																																																																																													
<b>I Application Information</b> <input type="checkbox"/> Student <input type="checkbox"/> Recreational <input type="checkbox"/> Private <input type="checkbox"/> Commercial <input type="checkbox"/> Airline Transport <input type="checkbox"/> Instrument <input type="checkbox"/> Additional Aircraft Rating <input type="checkbox"/> Airplane Single-Engine <input type="checkbox"/> Airplane Multiengine <input type="checkbox"/> Rotorcraft <input type="checkbox"/> Glider <input type="checkbox"/> Lighter-Than-Air <input type="checkbox"/> Flight Instructor Initial _____ Renewal _____ Reinstatement _____ <input type="checkbox"/> Additional Instructor Rating <input type="checkbox"/> Ground Instructor <input type="checkbox"/> Medical Flight Test <input type="checkbox"/> Reexamination <input type="checkbox"/> Reissuance of _____ Certificate <input type="checkbox"/> Other _____																																																																																																													
<b>A. Name</b> (Last, First, Middle)	<b>B. SSN</b> (US Only) <b>C. Date of Birth</b> Mo. Day Year <b>D. Place of Birth</b>																																																																																																												
<b>E. Address</b> (Please See Instructions Before Completing) City, State, Zip Code	<b>F. Nationality</b> (Citizenship) Specify <input type="checkbox"/> USA <input type="checkbox"/> Other <input type="checkbox"/> Yes <input type="checkbox"/> No <b>G. Do you read, speak and understand English?</b>																																																																																																												
<b>H. Height</b> In. <b>I. Weight</b> Lbs. <b>J. Hair</b> <b>K. Eyes</b> <b>L. Sex</b> <input type="checkbox"/> Male <input type="checkbox"/> Female	<b>M. Do you now hold, or have you ever held an FAA Pilot Certificate?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>N. Grade Pilot Certificate</b> <b>O. Certificate Number</b> <b>P. Date Issued</b>																																																																																																												
<b>Q. Do you hold a Medical Certificate?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>R. Class of Certificate</b> <b>S. Date Issued</b> <b>T. Name of Examiner</b>	<b>U. Have you been convicted for violation of Federal or State statutes relating to narcotic drugs, marijuana, or depressant or stimulant drugs or substances</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>V. Date of Final Conviction</b>																																																																																																												
<b>W. Glider or Free Balloon Pilots only:</b> <i>Medical Statement: I have no known physical defect which makes me unable to pilot a glider or free balloon.</i>	<b>Signature</b> <b>X. Date</b>																																																																																																												
<b>II Certificate or Rating Applied For on Basis of:</b>																																																																																																													
<input type="checkbox"/> <b>A. Completion of Required Test</b>	1. Aircraft to be used (if flight test required) 2a. Total time in this aircraft hours 2b. Pilot in command hours																																																																																																												
<input type="checkbox"/> <b>B. Military Competence Obtained in</b>	1. Service 2. Date Rated 3. Rank or Grade and Service Number 4. Has flown at least 10 hours as pilot in command during the past 12 months in the following military aircraft.																																																																																																												
<input type="checkbox"/> <b>C. Graduate of Approved Course</b>	1. Name and Location of Training Agency or Training Center 1a. Certification Number 2. Curriculum From Which Graduated 3. Date																																																																																																												
<input type="checkbox"/> <b>D. Holder of Foreign License Issued By</b>	1. Country 2. Grade of License 3. Number 4. Ratings																																																																																																												
<input type="checkbox"/> <b>E. Completion of Air Carrier's Approved Training Program</b>	1. Name of Air Carrier 2. Date 3. Which Curriculum <input type="checkbox"/> Initial <input type="checkbox"/> Upgrade <input type="checkbox"/> Transition																																																																																																												
<b>III Record of Pilot time</b> (Do not write in the shaded areas.)																																																																																																													
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"><thead><tr><th>Total</th><th>Instruction Received</th><th>Solo</th><th>Pilot in Command</th><th>Second in Command</th><th>Cross Country Instruction Received</th><th>Cross Country Solo</th><th>Cross Country Pilot in Command</th><th>Instrument</th><th>Night Instruction Received</th><th>Night Take-off/Landing</th><th>Night Pilot in Command</th><th>Night Take-off/Landing Pilot in Command</th><th>Number of Flights</th><th>Number of Aero-Tows</th><th>Number of Ground Launches</th><th>Number of Powered Launches</th><th>Number of Free Flights</th></tr></thead><tbody><tr><td>Airplanes</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Rotorcraft</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Glider</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Lighter than Air</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Training Device Simulator</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>		Total	Instruction Received	Solo	Pilot in Command	Second in Command	Cross Country Instruction Received	Cross Country Solo	Cross Country Pilot in Command	Instrument	Night Instruction Received	Night Take-off/Landing	Night Pilot in Command	Night Take-off/Landing Pilot in Command	Number of Flights	Number of Aero-Tows	Number of Ground Launches	Number of Powered Launches	Number of Free Flights	Airplanes																		Rotorcraft																		Glider																		Lighter than Air																		Training Device Simulator																	
Total	Instruction Received	Solo	Pilot in Command	Second in Command	Cross Country Instruction Received	Cross Country Solo	Cross Country Pilot in Command	Instrument	Night Instruction Received	Night Take-off/Landing	Night Pilot in Command	Night Take-off/Landing Pilot in Command	Number of Flights	Number of Aero-Tows	Number of Ground Launches	Number of Powered Launches	Number of Free Flights																																																																																												
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Training Device Simulator																																																																																																													
<b>IV Have you failed a test for this certificate or rating?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <b>Within the Past 30 days?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No																																																																																																													
<b>V Applicant's Certification</b> — I certify that all statements and answers provided by me on this application form are complete and true to the best of my knowledge, and I agree that they are to be considered as part of the basis for issuance of any FAA certificate to me. I have also read and understand the Privacy Act statement that accompanies this form.																																																																																																													
Signature of Applicant _____ Date _____																																																																																																													
<b>FAA Use Only</b>																																																																																																													
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FAA Form 8710-1 (7-92) Supersedes Previous Edition

**FIGURE 5.1.2.1.—Continued**  
**FAA FORM 8710-1, AIRMAN CERTIFICATE AND/OR RATING APPLICATION**  
**(BACK)**

<b>Instructor's Recommendation</b>				
I have personally instructed the applicant and consider this person ready to take the test.				
Date	Instructor's Signature	Certificate No.	Certificate Expires	
<b>Air Agency's Recommendation</b>				
The applicant has successfully completed our _____ course, and is recommended for certification or rating without further _____ test.				
Date	Agency Name and Number	Official's Signature		
		Title		
<b>Designated Examiner's Report</b>				
<input type="checkbox"/> Student Pilot Certificate Issued ( <i>Copy attached</i> ) <input type="checkbox"/> I have personally reviewed this applicant's pilot logbook, and certify that the individual meets the pertinent requirements of FAR 61 for the pilot certificate or rating sought. <input type="checkbox"/> I have personally reviewed this applicant's graduation certificate, and found it to be appropriate and in order, and have returned the certificate. <input type="checkbox"/> I have personally tested and/or verified this applicant in accordance with pertinent procedures and standards with the result indicated below. <div style="margin-left: 100px;"> <input type="checkbox"/> Approved—Temporary Certificate Issued (<i>Copy Attached</i>)  <input type="checkbox"/> Disapproved—Disapproval Notice Issued (<i>Copy Attached</i>) </div>				
Location of Test ( <i>Facility, City, State</i> )		Duration of Test		
		Ground	Simulator	Flight
Certificate or Rating for Which Tested		Type(s) of Aircraft Used		Registration No.(s)
Date	Examiner's Signature	Certificate No.	Designation No.	Designation Expires
<b>Evaluator's Record For Airline Transport Certificate/Rating Only</b>				
Oral	Inspector <input type="checkbox"/>	Examiner <input type="checkbox"/>	Signature _____	Date _____
Approved Simulator/Training Device Check	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Aircraft Flight Check	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Advanced Qualification Program	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
<b>Inspector's Report</b>				
I have personally tested this applicant in accordance with or have otherwise verified that this applicant complies with pertinent procedures, standards, policies, and or necessary requirements with the result indicated below. <input type="checkbox"/> <b>Approved</b> —Temporary Certificate Issued <input type="checkbox"/> <b>Disapproved</b> —Disapproval Notice Issued				
Location of Test ( <i>Facility, City, State</i> )		Duration of Test		
		Ground	Simulator	Flight
Certificate or Rating for Which Tested		Type(s) of Aircraft Used		Registration No.(s)
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> Student Pilot Certificate issued  <input type="checkbox"/> Examiner's Recommendation  <div style="margin-left: 20px;"><input type="checkbox"/> ACCEPTED   <input type="checkbox"/> REJECTED</div> <input type="checkbox"/> Reissue or Exchange of Pilot Certificate  <input checked="" type="checkbox"/> Special medical test conducted—report forwarded to Aeromedical Certification Branch, AAM-130 </div> <div style="width: 30%;"> <input type="checkbox"/> Certificate or Rating Based on  <input type="checkbox"/> Military Competence  <input type="checkbox"/> Foreign License  <input type="checkbox"/> Approved Course Graduate  <input type="checkbox"/> Other Approved FAA Qualification Criteria  <input type="checkbox"/> Certificate Issued  <input type="checkbox"/> Certificate Denied </div> <div style="width: 30%;"> <input type="checkbox"/> Instructor   <input type="checkbox"/> Flight   <input type="checkbox"/> Ground  <input type="checkbox"/> Renewal   <input type="checkbox"/> Approved  <input type="checkbox"/> Reinstatement   <input type="checkbox"/> Disapproved  <b>Instructor Renewal Based on</b>  <input type="checkbox"/> Activity   <input type="checkbox"/> Training Course  <input type="checkbox"/> Acquaintance   <input type="checkbox"/> Test </div> </div>				
Training Course (FIRC) Name		Graduation Certificate No.		Date
Date	Inspector's Signature	FAA District Office		
<b>Attachments:</b>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> Student Pilot Certificate (copy)  <input type="checkbox"/> Report of Written Examination  <input type="checkbox"/> Temporary Pilot Certificate (copy) </div> <div style="width: 30%;"> <input type="checkbox"/> Airmans Identification (ID)  <div style="margin-left: 20px;">Form of ID _____</div> <div style="margin-left: 20px;">Number _____</div> <div style="margin-left: 20px;">Expiration Date _____</div> </div> <div style="width: 30%;"> <input type="checkbox"/> Notice of Disapproval  <input type="checkbox"/> Superseded Pilot Certificate  <input checked="" type="checkbox"/> Answer Sheet Graded  <input type="checkbox"/> Answer Sheet Graded (Foreign Instrument) </div> </div>				

\* U.S.GPO: 1992-0-343-105/73558

**FIGURE 5.1.2.2.**  
**FAA FORM 8400-3, APPLICATION FOR AIRMAN CERTIFICATE AND/OR RATING**  
**(FRONT)**

Form Approved  
OMB No. 2120-0007

# Application For An Airman Certificate and/or Rating

U.S. Department of Transportation  
Federal Aviation Administration

<input type="checkbox"/> Flight Engineer	<input type="checkbox"/> Flight Navigator	<input type="checkbox"/> Aircraft Dispatcher
<input type="checkbox"/> Reciprocating Engine Powered	<input type="checkbox"/> Control Tower Operator	<input type="checkbox"/> Reissuance of Certificate
<input type="checkbox"/> Turbopropeller Powered	<input type="checkbox"/> VFR Tower Rating	<input type="checkbox"/> Additional Rating
<input type="checkbox"/> Turbojet Powered	<input type="checkbox"/> Non-Radar Approach Control Tower Rating	

1. TYPE OF AIRCRAFT TO BE USED

2. TIME IN THIS AIRCRAFT

3. NAME OF EMPLOYER

## 4. Applicant Identification

A. NAME (First-Middle-Last)

K. PERMANENT MAILING ADDRESS (Include Zip Code)

B. SOCIAL SECURITY NO.

C. DATE OF BIRTH

D. HEIGHT

E. WEIGHT

F. HAIR

G. EYES

H. SEX

I. NATIONALITY

J. PLACE OF BIRTH

TELEPHONE NO.

## 5. Certificates Held by Applicant

A. <input checked="" type="checkbox"/> Pilot	B. <input type="checkbox"/> Flight Navigator	E. <input type="checkbox"/> Ground Instructor
<input type="checkbox"/> Airline Transport	C. <input type="checkbox"/> Control Tower Operator	F. <input type="checkbox"/> Aircraft Dispatcher
<input checked="" type="checkbox"/> Commercial	D. <input type="checkbox"/> Flight Engineer	G. <input type="checkbox"/> Mechanic
<input type="checkbox"/> Flight Instructor		
<input type="checkbox"/> Private		

6. Applicant's Certification I certify that I meet all pertinent requirements of the Regulations for the certificate or rating applied for

Date

Applicant's Signature

## Instructor's Recommendation

7. I consider the above applicant ready to take the test for which he/she is applying:

A. ☐ Oral Test

or

C. ☐ Practical Test

Aircraft Dispatcher Only

B. ☐ Flight Test

D. Date

Instructor's Signature

Instructor's Certificate No.  
And Expiration Date

Grade and Certificate No.

E. Date

Instructor's Signature

Instructor's Certificate No.  
And Expiration Date

Grade and Certificate No.

## 8. Evaluation Record

	Inspector	Examiner	Signature	Date
Oral				
Practical Test Aircraft Dispatcher				
Practical Test Control Tower Operator				
Simulator Check				
Aircraft Flight Check				

## 9. Inspector's Record

☐ Temporary Airman Certificate Issued ☐ Notice of Disapproval of Application Issued ☐ Examiner's Action Accepted

DATE

INSPECTOR'S SIGNATURE

FAA OFFICE

CP REG OFFICE COM ISS ACT EMP TRNG M.T. DIS CLASS SEX RATING STATE COUNTY

☐ Do Not Micro  
Special Mailing  
Airmail

☐ IFO Mailing  
Correspondence



**FIGURE 5.1.2.2.—Continued**  
**FAA FORM 8400-3, APPLICATION FOR AIRMAN CERTIFICATE AND/OR RATING**  
**(BACK)**

10. Practical Test Report									
Grading Legend (All applicable items must be graded S or U)					S—Satisfactory U—Unsatisfactory				
Explain in "Remarks" all items which are not graded.									
Item No.	A. Flight Engineer		Grade		Item No.	C. Aircraft Dispatcher		Grade	
			Examiner	Inspector				Examiner	Inspector
1	Equipment Examination (Oral)				1	Aircraft			
2	Preflight Inspection				2	Air Routes and Airports			
3	Normal Operating Procedures				3	Altimeters			
4	Abnormal Operating Procedures				4	Weather Analysis			
5	Performance Data and Cruise Control				5	Airman's Information Manual			
6	Trouble Shooting				6	Dispatch and Assistance			
7	Emergency Procedures				7	Emergency Procedures			
8	Forms and Records				Item No.	D. Control Tower Operator	Grade		
9	Post Flight						Examiner	Inspector	
10	Crew Coordination								
11	Judgement								
Item No.	B. Flight Navigator		Grade		VFR TOWER RATING				
			Examiner	Inspector	1	The Control Tower			
					2	The Airport			
					3	The Control Zone			
					4	Notice to Airmen			
1	Equipment (Oral)				5	Weather Facilities and Procedures			
2	Equipment Check				6	A Demonstration of Ability to Control Air Traffic Under VFR			
3	Preflight Training								
4	Normal Navigation Procedures				NON-RADAR APPROACH CONTROL TOWER RATING				
5	Knowledge of Navigation Methods				1	Air Traffic Control Facilities			
6	Co-ordination of Navigational Methods				2	Air Navigation Facilities			
7	Emergency Procedures				3	Use of Airman's Information Manual			
8	Co-ordination of Duties				4	Holding Procedures			
9	Crew Co-ordination				5	Approach Procedures			
10	Judgement				6	Missed Approach Facilities			
11. Route Of Flight Check					7	Alternate Airports			
From		To		Hours		8	Search and Rescue Procedures		
				Day	Night	9	A Demonstration of Ability to Control Air Traffic Under IFR		
					10	Airport Identification			
Remarks									

**FIGURE 5.1.2.3.**  
**FAA FORM 8060-4, TEMPORARY AIRMAN CERTIFICATE**

I. UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION		III. CERTIFICATE NO.	
ii. <b>TEMPORARY AIRMAN CERTIFICATE</b>			
THIS CERTIFIES THAT		IV. V.	
DATE OF BIRTH	HEIGHT	WEIGHT	HAIR
	IN.		EYES
			SEX
			NATIONALITY
VI.			
IX. has been found to be properly qualified and is hereby authorized in accordance with the conditions of issuance on the reverse of this certificate to exercise the privileges of			
RATINGS AND LIMITATIONS			
XII.			
XIII.			
THIS IS <input type="checkbox"/> AN ORIGINAL ISSUANCE <input type="checkbox"/> A REISSUANCE OF THIS GRADE OF CERTIFICATE		DATE OF SUPERSEDED AIRMAN CERTIFICATE	
BY DIRECTION OF THE ADMINISTRATOR		EXAMINER'S DESIGNATION NO. OR INSPECTOR'S REG. NO.	
X. DATE OF ISSUANCE	X. SIGNATURE OF EXAMINER OR INSPECTOR		DATE DESIGNATION EXPIRES
FAA Form 8060-4 (8-79) USE PREVIOUS EDITION			

**FAA FORM 8060-5, NOTICE OF DISAPPROVAL OF APPLICATION**

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION		<b>NOTE</b> PRESENT THIS FORM UPON APPLICATION FOR REEXAMINATION	
<b>NOTICE OF DISAPPROVAL OF APPLICATION</b>			
NAME AND ADDRESS OF APPLICANT		CERTIFICATE OR RATING SOUGHT	
On the date shown, you failed the examination indicated below:			
<input type="checkbox"/> FLIGHT <input type="checkbox"/> ORAL <input type="checkbox"/> PRACTICAL			
AIRCRAFT USED (Make and Model)		FLT. TIME RECORDED IN LOGBOOK	
		PILOT-IN-COMM. OR SOLO	INSTRUMENT
			DUAL
UPON REAPPLICATION YOU WILL BE REEXAMINED ON THE FOLLOWING:			
I have personally tested this applicant and deem his performance unsatisfactory for the issuance of the certificate or rating sought.			
DATE OF EXAMINATION	SIGNATURE OF EXAMINER OR INSPECTOR		DESIGNATION OR OFFICE NO.
FAA Form 8060-5 (4-82)			

**FIGURE 5.1.2.4.**  
**PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—AIRPLANES**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
Aero Commander Division North American Rockwell Corp.	1121 Jet Commander Westwind	AC-1121 CJ-1123	IA-JET
Aerospatiale, France	SN 601 Corvette ATR-42/72		SN-601 ATR-42/72
Armstrong Whitworth Aircraft, Ltd., UK	Argosy AW 650	Armstrong Whitworth AW-650	AW-650
Beech Aircraft Corp., USA  (Formerly Mitsubishi Aircraft Int'l, Inc.)	BE-300 BE-1900 200T/200TC Starship Diamond I and MU-300-10	BE-300, BE-1900 BE-300, BE-1900  MU-300	BE-300 BE-1900 BE-200 BE-2000 MU-300 BE-400
Boeing Co., USA	B-17 247-D 314 S-307, SA-307 377, C-97 YC-97 707, 720 C-135, E3-A 727 737/100/200/300, T-43 747, 747SP, E4 747-400 757, 767	Boeing B-17 Boeing 247 Boeing 314 Boeing 307 Boeing 377  Boeing 707/720  Boeing 727 Boeing 737  Boeing 747 Boeing 757, 767	B-17 B-247 B-314 B-307 B-377  B-707, B-720  B-727 B-737 B-747 B-747-4 B-757, B-767
Breguet, France	Fauvette 905A		BG-905
Bristol Aircraft Ltd., UK	Britannia 305		BR-305
British Aerospace Aircraft Group Hatfield Chester Division Hatfield-Hetfordshire, England	BAE-146 100/200 Series		BAE-146
British Aerospace Group Scottish Division Ayrshire, Scotland KA92RW	HP.137, MK.1 Jetstream Series 200 Jetstream 3101		BA-3100
British Aircraft Corp., UK	BAC 1-11	BAC-1-11	BA-111
B/A Concorde	Concorde SST		CONCRD
Bushmaster Aircraft	Bushmaster 2000		BU-2000
Canadair, Ltd. Canada	CL-44, OC-6 CL-215 IA10 Challenger CL-600 Challenger	Canadair	CL-44 CL-600
Cessna Aircraft Corp., USA	Cessna 500 Series CE-525, CE-525S Citation III, Model 650		CE-500 CE-525, CE-525S CE-650
Chase (also Roberts Aircraft Co.), USA	YC-122	Chase YC-122	YC-122
Consolidated Vultee Aircraft	(See General Dynamics Corp.)		
Convair	(See General Dynamics Corp.)		

**FIGURE 5.1.2.4.—Continued**  
**PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—AIRPLANES**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
Construções Aeronáuticas S.A.	CASA (Model) C-212-CB C-235		CA-212 CN-235
Curtiss-Wright Corp., USA	Commando CW-20	Curtis-Wright C-46	CW-46
Dart Aircraft Corp.	(See General Dynamics Corp.)		
Dassault, General Aeronautique Marcel, Dassault, France	Mystere 10 Falcon, Fan Jet Mystere 20 Falcon, Fan Jet Falcon 50 (Tri-jet) Falcon 200 Falcon 900	GAMD/SUD-20	DA-10 DA-20 DA-50 DA-200 DA-900
DeHavilland Aircraft of Canada Ltd., Canada  (See Hawker Siddeley)	Caribou 4A USAF C-7A, Army CV-2 DHC-7 DHC-8	DeHavilland Caribou	DH-4 DH-4 DHC-7 DHC-8
Dee Howard Co., USA	Howard 500	Howard 500	HW-500
Dornier GMBH Friedrichshafen, Germany	Dornier 228-201/101		DO-228
Douglas Aircraft Co.	(See McDonnell Douglas)		
Empresa Brasileira de Aeronáutica, Brazil	EMB-110P1, P2, P3 EMB-120		EMB-110 EMB-120
Fairchild Aircraft Corp., USA	C-119C C-123		FA-119C FA-123
Fairchild Aircraft Corp., USA and Fokker, The Netherlands	Friendship F-27 F-227	Fairchild  F-27/227	F-27
Fairchild Hiller	C-82A		C-82A
Fokker, Netherlands	Fellowship F-28 (Models 1000 & 4000) FA-1100		FK-28  FA-1100
Ford Motor Corp., USA	Tri-Motor 4-AT 5-AT	Ford 5	FO-5
Gates Learjet	23, 24, 25, 28, 29, 35, 36, 50 60	LR-23, LR-24, LR-25, LR-28, LR-29, LR-35, LR-36, LR-50	LR-JET  LR-60

**FIGURE 5.1.2.4.—Continued**  
**PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—AIRPLANES**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
General Dynamics Corp., USA	PB2Y, PB2Y-5 PB4Y, QP-4B PBY-5, 28-4, 28-5 LB-30, C-87A RB-24 240, 340, 440 T-29, C-131 22, 22M (880) (990) Napier-Eland Mark I, Mark II Allison Propjet Convair 340, 440, 580 Dart Convair 240, 340, 440	Consolidated-Vultee PB2Y Consolidated-Vultee P4Y Consolidated-Vultee PBY-5 Consolidated-Vultee LB-30 Convair 240/340/440  Convair 880/990 Napier-Eland Convair Mark I/II  Allison 340/440 Convair 600/640	CV-PB2Y CV-P4Y CV-PBY-5 CV-LB30 CV-240, CV-340, CV-440 CV-880, CV-990 CV-N1, CV-N2  CV-A340, CV-A440 CV-600 CV-640
Groupeement d'Interet Economique Airbus Industrie, France	A-300 A-300B Airbus A310 Airbus		A-300 A-310
Grumman Aircraft Engineering Corp., USA	TBF, TBM AF-2S (Ref. T.O.Ar-36) G-64 Albatross G-73 Turbo Mallard (Frakes Conversion) G-73 Mallard S2F/C1A G-159 Gulfstream VC-4A, TC-4C G-1159 G-1159C	Grumman TBF  FS-73T Grumman G-73 Grumman G-159  Grumman G-1159	G-TBM  G-111 G-73T G-73 G-S2 G-159  G-1159 G-IV
Hamburger Flugzeugbau G.M.B.H., West Germany	Hansa Jet 320		HF-320
Handley Page Aircraft Co., Ltd., UK	Herald 300	Handley Page 300	HP-300
Hawker Siddeley Aviation Ltd., UK	DH-125 DH-106, Comet 4C DH-114 Heron Hawker Siddeley 748	Hawker Siddeley deHavilland 4C  Hawker Siddeley	HS-125 HS-106  HS-114 HS-748
Howard Aero Corp.	(See Dee Howard Co.)		
Israel Aircraft Ltd., Israel	Commodore Jet 1123 Westwind 1124 (See Aero Commander) IAI-1125 ARAVA IA 101B	AC-1121, CJ-1123	IA-JET  IA-1125 IA-101

**FIGURE 5.1.2.4.—Continued**  
**PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—AIRPLANES**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
General Dynamics Corp., USA	PB2Y, PB2Y-5 PB4Y, QP-4B PBY-5, 28-4, 28-5 LB-30, C-87A RB-24 240, 340, 440 T-29, C-131 22, 22M (880) (990) Napier-Eland Mark I, Mark II Allison Propjet Convair 340, 440, 580 Dart Convair 240, 340, 440	Consolidated-Vultee PB2Y Consolidated-Vultee P4Y Consolidated-Vultee PBY-5 Consolidated-Vultee LB-30 Convair 240/340/440  Convair 880/990 Napier-Eland Convair Mark I/II  Allison 340/440 Convair 600/640	CV-PB2Y CV-P4Y CV-PBY-5 CV-LB30 CV-240, CV-340, CV-440 CV-880, CV-990 CV-N1, CV-N2  CV-A340, CV-A440 CV-600 CV-640
Groupeement d'Interet Economique Airbus Industrie, France	A-300 A-300B Airbus A310 Airbus		A-300 A-310
Grumman Aircraft Engineering Corp., USA	TBF, TBM AF-2S (Ref. T.O.Ar-36) G-64 Albatross G-73 Turbo Mallard (Frakes Conversion) G-73 Mallard S2F/C1A G-159 Gulfstream VC-4A, TC-4C G-1159 G-1159C	Grumman TBF  FS-73T Grumman G-73 Grumman G-159  Grumman G-1159	G-TBM  G-111 G-73T G-73 G-S2 G-159  G-1159 G-IV
Hamburger Flugzeugbau G.M.B.H., West Germany	Hansa Jet 320		HF-320
Handley Page Aircraft Co., Ltd., UK	Herald 300	Handley Page 300	HP-300
Hawker Siddeley Aviation Ltd., UK	DH-125 DH-106, Comet 4C DH-114 Heron Hawker Siddeley 748	Hawker Siddeley deHavilland 4C  Hawker Siddeley	HS-125 HS-106  HS-114 HS-748
Howard Aero Corp.	(See Dee Howard Co.)		
Israel Aircraft Ltd., Israel	Commodore Jet 1123 Westwind 1124 (See Aero Commander) IAI-1125 ARAVA IA 101B	AC-1121, CJ-1123	IA-JET  IA-1125 IA-101

**FIGURE 5.1.2.4.—Continued**  
**PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—AIRPLANES**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
North American Rockwell Corp., USA	B-25 Mitchell	North American B-25	N-B25
	NA-265 Sabreliner T-39	North American NA-265	N-265
Northrop Corp., USA	P-61 Black Widow	Northrop P-61	NH-P61
Piaggio, Italy	Piaggio-Douglas 808	Piaggio Douglas PD-808	P-808
Piper Aircraft, USA	PA-42-720 (Restricted)		PA-42R
SAAB-Fairchild International, Sweden	SAAB-Fairchild 340		SF-340
Short Brothers and Harland Ltd., Northern Ireland (UK)	SD3-30, SD3-60 Variant 200	SD3-30	SD-3
Sikorsky Aircraft Division of United Aircraft Corp., USA	VS-44AC-32, C-34	Sikorsky VS-44	SK-44
	S-43 Series	Sikorsky S-43	SK-43
Sud Aviation, France	SE Caravelle I, II, VIR	SUD 210	S-210
Swearingen Fairchild Aircraft Corp.	SA 226-TC, SA-227-AC, AT, TT		SA-227
Vickers-Armstrong British Aircraft Corp., UK	700 & 800 Series	Vickers Viscount	VC-700 VC-800

**FIGURE 5.1.2.5.  
PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—ROTORCRAFT**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
Bell USA	BH-214St		BH-14ST
Boeing Vertol, USA	107-II, H-46 Kawasaki, KV107-II 114, Ch-47A Series, BV-234	Vertol 107 II	BV-107  BV-114 or BV-234
Sikorsky, USA	S-43 Series VS-44AC-32, C-34 H-37 Series S-58 Series H-34 Series S-61 Series S-64 Series HH-53, CH-53A S-70 (UH-60)	Sikorsky S-43  Sikorsky S-58 S-581T Sikorsky S-61 Sikorsky S-64 Sikorsky S-65	SK-43 SK-44 SK-56 SK-58  SK-61 SK-64 SK-65
Sud Aviation, USA	SA321F SA330F, SA-332 AS-330		S-321 S-330
Vertol, USA	H-21	Vertol 44	BV-44

**The following applies to helicopters weighing 12,500 pounds or less on which type ratings are issued to holders of airline transport pilot certificates only:**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
Aerospatiale, France	SA 341/342 Gazelle SA 360 AS 350 Astar SA 355 Twinstar SA 360C Dauphine (SE) SA 365 Dauphine (ME)		SA-341  AS-350 AS-355 SA-360 SA-365
Bell, USA	47 Series H-13 Series 204-B, UH1-B, -D, H205A 206A, 206B 212/412 Series 214 Series 222 Series	Bell 47  Bell 204  Bell 206 Bell 212	BH-47  BH-204  BH-206 BH-212 BH-214 BH-222
Brantley, USA	B-2 (YH03BR) B-305	Brantley B-2 Brantley B-305	BY-2 BY-305



**FIGURE 5.1.2.5.—Continued**  
**PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—ROTORCRAFT**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
Construzioni Aeronautiche Giovanni Agusta, Italy	A109 Agusta		A-109
Enstrom, USA	F-28	Enstrom F-28	EN-28
Hiller, USA	UH-12 Series H-23 Series	Hiller UH-12	HH-12
Fairchild, USA	FH-1100	FH-1100	FA-1100
Hughes, USA	300, 269 Series	Hughes 269A	HU-269
	500, 369 Series	Hughes 500	HU-369
Kaman, USA	K-190A	Kaman K-190A	KM-190
	K-225	Kaman K-225	KM-225
	K-240, HTK-1	Kaman K-240	KM-240
	K-600	None	KM-600
Lockheed, USA	Lockheed California 286	Lockheed California 286	L-286
McDonnell Douglas Helicopter Co. (MDHC)	(See Hughes, USA)		
Messerschmitt Bolkow Gmbh (West Germany)	BO-150A		BO-105
	BK-117-A1		BK-117
Omega, USA	12D1A	Omega 12D1	OM-12
Piasecki, USA	HRP-1, HRP-2	Piasecki HRP	PI-HRP
Robinson Helicopter	R-22	None	R-22
	R-44	None	R-44
Schweitzer Aircraft Corp.	(See Hughes, USA)		
Scheutzwow, USA	Model B		SC
Sikorsky, USA	R-4B	Sikorsky R-4B	SKI-4
	R-5A, YR-6A	Sikorsky R-5A	SK-5
	R-6A, HOS-1		
	S-51	Sikorsky S-51	SK-51
	S-52 Series	Sikorsky S-52	SK-52
	S-55, H-19 Series	Sikorsky S-55	SK-55
	S-62A, HH-52A	Sikorsky S-62	SK-62
Silvercraft, USA	S-76	Sikorsky S-62	SK-76
	SPA-SH4		SI-4

**FIGURE 5.1.2.5.—Continued**  
**PILOT CERTIFICATE AIRCRAFT TYPE DESIGNATIONS—ROTORCRAFT**

MANUFACTURER	MODEL DESIGNATION	PRIOR DESIGNATION	CURRENT DESIGNATION
Sud Aviation	SE 3130, SE 313B SE 3160, SA 316B SA 3180, SA 318B SA 318C, SA 315B SO 1221	Sud Alouette II/III	S-3130
		Sud Djinn	S-1221
Westland Helicopters, Inc., Yeoville, England	W-30		WH-30

**FIGURE 5.1.2.6.**  
**FAA FORM 8000-36, PROGRAM TRACKING AND REPORTING SUBSYSTEM DATA SHEET**

PROGRAM TRACKING AND REPORTING SUBSYSTEM DATA SHEET							
<b>SECTION I</b> Inspector Name Code:		<b>SECTION IV - COMMENT SECTION (unlimited)</b>					
Record ID:							
Activity Number:	FAR:	NPG:					
Status: (COP)	CallUp Date:	Start Date:					
Results: (ACEFISTX)	Pass/Fail (P/F):	Completion Date:					
Designator:	Alman Cert. #:						
Alman Name/Other:							
Aircraft Reg #: N							
Make-Model-Series:							
Loc/Departure Point	Arrival Point:	Flight #:					
Investigation :							
Tracking:							
Miscellaneous:							
Numeric Misc.:							
Local Use:							
Regional Use:							
National Use:							
Activity Time:	Travel Time:						
Travel Cost:	Geographic Activity:						
Triggers: (Activity#)	REXM/ R # (repeat)						
<b>SECTION II - PERSONNEL (unlimited)</b>							
Personnel Name:	Position:	Base:	Remarks (35 Characters)				
<b>SECTION III - EQUIPMENT (unlimited)</b>							
Manufacturer:	Model:	Serial #:	Remarks (23 Characters)				
Date:		Originator:		Office:		Supervisor Initials:	
Inspector Signature:							

FAA Form 8000-36 (9-92)

**FIGURE 5.1.2.7.  
SAMPLE LETTER OF DISCONTINUANCE**

---

FAA Letterhead

[date]

*Applicant's name and address*

Dear [applicant's name]

On this date you successfully completed the oral portion of the practical test for a [indicate grade] certificate with an [indicate category] category and [indicate class] class rating. The practical test was discontinued because of [indicate reason].

If application is made by [indicate date 60 days from date of letter], this letter may be used to show the following portions of the practical test which have been completed satisfactorily.

- *Indicate pilot operations completed on the test*

After [indicate expiration date] you must repeat the entire practical test.

This letter does not extend the expiration date as shown on the written test results, medical certificate, or required endorsements.

Sincerely,

[signed by the inspector conducting the practical test]

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